

CULTIVATING A FARM EXPERIENCE:
PERCEPTIONS OF FIELD TRIPS TO EDUCATIONAL FARMS

A Thesis

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ABSTRACT

The growing distance of consumers from the source of their food increases the necessity of developing agricultural literacy. A farm is an effective venue for the development of agricultural literacy; educational farms can provide authentic learning experiences and help people make connections to the land, to the source of their food, to one another, and between classroom learning and real life. Field trips provide a way to introduce young people from nonagricultural backgrounds to farms and offer a variety of cognitive, social, and affective benefits.

Grounded in experiential learning, informal education, and place-based education, and supported by an understanding of learning in museums and on field trips, this study investigated the benefits of educational farm field trips as perceived by farm educators, classroom teachers, and students. To explore goals and expectations surrounding school field trips to educational farms, interviews were conducted at each of three educational farms with the farm-based educator and with classroom teachers visiting the farms with their classes. Students participating in field trips to the farms responded to questions about their experience and learning. Inductive analysis of the data identified emergent themes and patterns; goals of each educator were identified and considered in relation to one another.

Findings indicate that the farm experience, interconnectivity, local food, agricultural literacy, and curriculum connections are important factors in field trips to educational farms. Classroom teachers and farm educators tended to have similar goals for the field trips, but some differences were found. Students reported both

cognitive and affective learning from their field trips. Logistical elements of field trips and approaches to overcoming barriers are considered. Implications for field trips and future research are discussed.

BIOGRAPHICAL SKETCH

Robyn Stewart grew up in New York City and spent weekends and summers with horses, chickens, and flower and vegetable gardens at her grandparents' house. She earned her bachelor's degree from Swarthmore College in psychology and education in 2001. Since then, she has taught interdisciplinary garden-based education programs in schools and parks in New York City, worked on an organic goat farm on an island in British Columbia, and supported medical research as a study coordinator. The present work brings together Robyn's interests in farming, health, education, sustainability, and good food. At Cornell, in addition to pursuing her degree, Robyn has worked on projects to engage young people in agriculture and to revise a food systems curriculum for youth.

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Introduction

Overview

Why take a field trip to a farm? This study was designed to explore the goals and benefits surrounding school field trips to educational farms. At each of three educational farms, interviews were conducted with the farm-based educator and with classroom teachers visiting the farms on field trips with their classes; students participating in field trips to the farms responded to questions about their experience and learning. Findings indicate that the farm experience, interconnectivity, local food, agricultural literacy, and curriculum connections are important factors in field trips to educational farms. While classroom teachers and farm educators tended to have similar goals for field trips, some differences were found. Logistical elements of field trips and approaches to overcoming barriers to field trips are considered. Implications for field trips and future research are discussed.

This chapter addresses the purpose and significance of studying the goals of educators and the experiences of students on school field trips to farms. Research questions are presented, and the limitations of the study are considered. Operational definitions of relevant terms are introduced in order to ensure a common foundation for discussion.

Significance

People are becoming more and more distant from the source of their food. According to the 2007 Census of Agriculture, farmers now make up just 1% of the United States population (United States Department of Agriculture, 2009). In addition, it is increasingly difficult to connect highly processed products such as Chicken McNuggets® or PopTarts® to their farm sources. It is therefore hardly surprising that for many people today, an egg comes from a carton in Aisle 6, and tomatoes simply materialize in the produce section, often wrapped in plastic.

Perhaps in reaction to this situation, some people are becoming more interested in where their food comes from. Witness the increase in farmers' markets across the country, the growing awareness of organic and sustainable agriculture, and the recent movement of young people to the land. The term "locavore" was The New Oxford American Dictionary's 2007 Word of the Year (Oxford University Press, 2007), underscoring its cultural significance. Even some mainstream grocery stores now prominently display food origins.

Awareness of the value of time spent outdoors is also increasing (Faber Taylor, Kuo, & Sullivan, 2001; Louv, 2005; No Child Left Inside Act of 2009). With the expansion of "virtual" worlds, people are re-discovering the value of experiencing and exploring the real world. Time outdoors has been associated with a reduction in mental challenges such as Attention Deficit Disorder (Faber Taylor, Kuo, & Sullivan, 2001) and Attention Deficit/Hyperactivity Disorder (Kuo & Faber Taylor, 2004), and improvement in nearsightedness (Rose, Morgan, Ip, Kifley, Huynh, Smith, & Mitchell, 2008).

In addition, many North Americans consume fewer vegetables than is recommended (Department of Agriculture & United States Department of Health and Human Services, 2010), and an expanding body of evidence supports a connection between growing vegetables and eating them. Particularly for children, vegetable gardening is positively associated with consumption of fruits and vegetables (Devine, Wolf, Frongillo, & Bisogni, 1999; Koch, Waliczek, & Zajicek, 2006; Libman, 2007; McAleese & Ranklin, 2007; Morris & Zidenberg-Cherr, 2002; Ratcliffe, Merrigan, Rogers, & Goldberg, 2011). Greener school grounds have been linked to a variety of academic and health benefits (Bell & Dymont, 2008). Food security, food safety, and public health are all linked to agricultural literacy and an understanding of our food system.

One effective venue for the development of agricultural literacy is a farm. A working farm has been described as one of the most robust and interdisciplinary outdoor locations (Gaffney, 2004). Farm-based education is a form of experiential, interdisciplinary education that connects people to the environment, their community, and the role of agriculture in their lives. It promotes land stewardship, encourages the value of meaningful work, and supports local food systems (Farm-Based Education Association, 2011). Farm-based education programs have grown in number and visibility over the past 30 years, and serve as field trip sites as well as performing other formal and informal education roles.

Field trips are a common way for young people from nonagricultural backgrounds to be introduced to farms. Educational farms can provide authentic learning experiences in a concrete context and can help people to make connections – to the land, to the source of their food, and to one another. In addition to these opportunities for learning and connections, students visiting farms can see, feel, hear, and experience some of the abstract things they may be learning about in school, reinforcing their classroom learning. By connecting school and non-school contexts, field trips to farms bridge an ever-widening gap between formal and informal learning. Field trips to farms may spark curiosity, provide concrete connections to classroom learning, and help youth to situate themselves in our food system.

Field trips are an established activity in North American schools; millions of schoolchildren participate in field trips every year (Anderson, Kisiel & Storksdieck, 2006; Flexer & Borun, 1984). Field trips can involve visits to science centers, art museums, parks, nature centers, firehouses, and farms, among other locations. Classroom teachers may take students on field trips to complement and supplement classroom instruction, to broaden students' experiences, to improve cognitive or social abilities, or to introduce students to community

resources (Falk, Martin & Balling, 1978; Gottfried, 1980; Tran, 2006). By engaging youth in a new setting, field trips may allow for a different type of learning than occurs in the classroom, and they are often simply fun. In an era when classroom education is being driven further and further from real-life learning experiences (Sobel, 2005), field trips offer a way for teachers and students to connect classroom learning with real life, demonstrating to students the relevance of their learning.

However, with budget-tightening and the rise in high-stakes testing, less money is available for field trips and more school time is devoted to testing requirements (Anderson, et al., 2006; Center on Educational Policy, 2008; Nichols & Berliner, 2005; Schatz, 2004; Golinkoff, Hirsh-Pasek, & Singer, 2006). In addition, reducing instructional time for tested subjects is often frowned upon, however valuable a field trip experience may be (No Child Left Inside Coalition, 2011).

Given the potential of field trips to educational farms to increase both agricultural literacy and real-life connections through authentic learning experiences, and given the current budgetary and high-stakes testing constraints, it becomes important to explore the role of farm-based field trips, and the experiences and goals of those who participate in them. Within the museum literature, some attention is paid to school field trips (e.g., Anderson, Lucas, Ginns, & Dierking, 2000; DeWitt & Osborne, 2007; Flexer & Borun, 1984; Kubota, 1991), and to the relationship between museum educators and classroom teachers on field trips to museums (e.g., Anderson, et al., 2006; Anderson & Zhang, 2003; Davidson, Passmore, & Anderson, 2010; Tal & Steiner, 2006). However, although prior research advocates the importance of field trip goals, the few studies that have explored these goals suggest that classroom teachers and informal educators

may not always be in sync. Does this disconnect also exist between farm-based educators and classroom teachers?

A small body of literature addresses field trips more generally, particularly those designed to teach science concepts (e.g., Davidson, et al., 2010; DeWitt & Storksdieck, 2008; Falk & Balling, 1978; Orion, 1993; Orion & Hofstein, 1994) but no study was found that focused on field trips to educational farms.

In addition, despite an increase in focus on *perceptions* in understanding field trip learning (Griffin, 2004), little research has focused on the perceptions of students themselves about field trip experiences (Davidson, et al., 2010). This study considers the perceptions of three major stakeholders on farm field trips: classroom teachers, farm educators, and students.

Field trips to educational farms have the potential to impact agricultural literacy and offer authentic learning experiences. In addition, they may increase vegetable preferences and time spent outdoors. Yet research on these field trips is slim. Why do farm educators host field trips, and why do teachers take their classes to visit farms? What do educators and students think about these trips? This study aims to address these questions.

Purpose and Research Questions

The purpose of this study was to explore the goals of classroom teachers and farm-based educators and the experiences of students when school groups take field trips to educational farms. With less time and money available for field trips, it is essential to understand the aims of such trips, their value to educators and students, and their perceived contributions to student learning.

There are a wide variety of possible benefits of field trips to educational farms. This study aimed to determine which benefits are perceived to be important by farm educators,

classroom teachers, and students. Further, it sought to ascertain and compare the goals of the educators involved and the impacts farm field trips make on students.

Findings from this study may inform the use of field trips to educational farm sites, both for farm-based educators and for classroom teachers. This study will help to bridge gaps between formal and informal education, aid integration of nontraditional education into school curricula, and help field trips to farms be more valuable for students, teachers, and farmers.

This study sought to answer the following questions:

1. What are the benefits of field trips to educational farms?
 - a. As perceived by classroom teachers?
 - b. As perceived by farm-based educators?
 - c. As perceived by students?
2. How do the goals of classroom-based teachers and farm-based educators align with one another?
 - a. What are the goals of farm-based educators in hosting field trips?
 - b. What are the goals of classroom teachers in taking classes on field trips to educational farms?
 - c. How do these goals align with one another?
3. What do youth learn or take away from field trips to educational farms?

Assessment of Limitations

This study is limited by its focus on three farm-based educators and eight teachers and their classes. It is possible, then, that the results of the study may be limited to the specific farm sites investigated and the individuals interviewed. In order to reduce the possibility of the findings being an artifact of the sites and individuals investigated, efforts were made to select

sites that varied in geographic location and programming and that were representative of educational farms. However, the possibility of this limitation can never be fully eliminated.

In addition, the teachers who participated in this study were those interested volunteers who responded to an invitation to participate. As such, they were not necessarily a representative sample of all teachers who take field trips to educational farms. All farm educators who were invited to participate did agree to participate, so this potential limitation is believed to be less of a factor in their case.

In sharing their views by interview, it is possible that educators may have shared responses that were more “socially acceptable” than their actual views. An attempt was made to minimize this possibility by establishing rapport with participants, by assuring participants of confidentiality, and by asking questions that were open-ended and non-judgmental.

As its focus was on the subjective elements of goals, perceptions, and experiences of participants, this study did not consider “objective” circumstances that may also be relevant to understanding school field trips to educational farms, such as financial situations of the participating farms or classes, distance between schools and farms, or measurable impacts of a field trip on academic performance.

Operational Definitions

Agricultural Literacy. Agricultural literacy is an understanding of the food and fiber system, including food and fiber production, how food or fiber gets to the table or sweater, and the importance of agriculture (Frick, Kahler, & Miller, 1991).

Classroom Teacher. A classroom teacher is an educator who works in a formal school setting.

Community Supported Agriculture (CSA). Community supported agriculture is an arrangement through which a group of people buys shares of the future harvest of a farm before the crops are planted. In exchange for their investment in the farm, shareholders receive farm products throughout the harvest season. By making this investment, CSA members accept part of the financial risks associated with farming. Further, the farmer receives payment at the beginning of the season, when it may be most needed.

Educational Farm. An educational farm is a farm at which farm-based education occurs. Such farms can serve visitors ranging from infants to adults. They may be large or small, for-profit or non-profit, and may produce a variety of farm products and host a variety of educational programs.

Farm. A farm is a place where agricultural products are produced and sold.

Farm-based Education. Farm-based education is a form of experiential, interdisciplinary education that connects people to the environment, their community, and the role of agriculture in their lives. Farm-based education promotes land stewardship, encourages the value of meaningful work, and supports local food systems (Farm-Based Education Association, 2011).

Farm-based Educator or Farm Educator. An educator who works in the setting of an educational farm. In the case of this study, all farm educators were also specifically responsible for field trips.

Field Trip. A field trip is “any journey taken under the auspices of the school for educational purposes” (Sorrentino & Bell, 1970).

Goal. A goal is an objective, or purpose for doing something; the end toward which effort is directed. This study was interested in the goals of educators in taking students on field trips.

Informal Learning. Informal learning refers to learning that occurs in non-school settings, in a less formal fashion than classroom learning. Although the accuracy of the terms “informal,” “non-formal,” and “free-choice” has been debated (Eshach, 2007; Falk & Dierking, 2000; La Belle, 1982), and some believe that the distinctions are contrived (Hofstein & Rosenfield, 1996), the term “informal” will be used broadly here as an umbrella term for non-school learning.

Local Food/Local Food System. In a local food system food is produced, distributed, and consumed in a local area; local food is often, but not always, marketed directly to the consumer by the producer. The distances involved in a local food system are not absolute, but relative, and depend upon circumstances of the local area.

Museum. The term museum refers to a wide range of informal educational institutions, including art, history, and science museums, zoos, arboreta, botanical gardens, science centers, and living history centers, among others (Falk & Dierking, 2000). This study considered educational farms to be a type of museum.

Sustainability. Sustainability is the capacity to continue or endure. Sustainability refers to an approach to using resources in such a way that they are not used up or damaged, and such that they can continue to be utilized in the future. In the context of this study, sustainability refers to environmental sustainability and to the sustainability of educational programs.

Summary

This chapter presented the study and its aims. In order to better understand school field trips to farms, interviews with farm educators explored their goals and expectations in hosting field trips. Interviews with classroom teachers and surveys of students taking field trips to farms sought to discover teacher and student perspectives on such field trips.

Although few studies have addressed school field trips to farms in particular, a wider literature may shed some light on issues important in this study. The next chapter considers some of the literature relevant to school field trips to farms.

Literature Review

This study explored goals and experiences surrounding school field trips to educational farms. In order to develop a more complete understanding of the value of these trips, interviews were conducted with farm educators and with classroom teachers visiting farms with their classes; students responded to questions about their experiences and learning on the trip. Prior literature was not found that specifically addressed school field trips to farms. However, there does exist literature that may assist in understanding such trips from a variety of perspectives.

Theoretical Framework

Learning theories, particularly experiential, informal, place-based, and museum learning, combined with an understanding of effective field trips, inform this study's understanding of field trips to educational farms. Such field trips can provide authentic learning experiences for students and impact agricultural literacy. Greater agricultural literacy will help students be more informed participants in the food system. In addition, these field trips may affect vegetable preferences, with the potential to improve nutrition and health.

Experiential Learning

A field trip can be a means of experiential learning for youth. Broadly, experiential learning refers to learning through experiences. Developed through the work of Dewey (1938/1997), Lewin (1951), Piaget (Piaget & Inhelder, 1969), and Kolb (1984, 2000), theories of experiential learning emphasize interaction between learner and environment. Learning is seen to be a continuous cyclical process based in experience and reflection on experience. To Dewey, learning was a cycle of observation, knowledge, and judgment. Piaget considered the learning process to be a cycle of interaction between the individual and the environment in a process of

accommodation and assimilation. Lewin saw learning as a cycle of concrete experience, observation and reflection, abstraction and generalization, and testing these concepts.

Kolb (1984) defined learning as the process by which knowledge is created through the transformation of experience. He suggested that learning occurs in the interaction between expectation and experience and between concrete experience and analytic detachment. In addition to having an experience, learning requires an expectation about the experience beforehand and reflection on it afterwards. He further argued that a holistic conception of learning can provide conceptual bridges across a variety of life situations. Dewey (1938/1997) suggested that subject matter learned in isolation cannot be applied to other contexts. Hopkins (1994) recommended that teachers use the experiences of students to help them make connections between school and the real world.

Similarities have been found between experiential learning and other models, such as problem-solving and inquiry-based learning (Roberts, 2006). Montessori (1967) also saw learning as occurring through experiences in which a child acts on his or her environment. She said, “Only practical work and experience lead the young to maturity” (p. 32), and “Only by action can children learn” (p. 173). Vygotsky (1978) discussed the importance of interaction between learner and environment. In the context of public school agricultural education, Phipps, Osborne, Dyer, and Ball (2008) emphasized learning by doing.

In embracing the importance of experience in learning, there is the danger of presuming that any experience will result in learning. However, just doing something does not necessarily translate into learning (Dewey, 1916/1944). Dewey (1938/1997) observed that “the belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative” (p. 25) and suggested that “everything depends upon the *quality*

of the experience which is had” (p. 27). Echoing Dewey, Dewitt and Storksdieck (2008) posited that, on a field trip, “some types of experiences may have more potential to help teachers maximize student learning than others.” What do these experiences with greater potential look like? Hein (1998) argued that experiences must challenge and stimulate students in order to be educative. He suggested a distinction between experiences that are simply “hands-on” and those that are also “minds-on.” “Minds-on” experiences are ones in which the participant is actively engaged in thinking about the experience, both during and after it occurs; these are the experiences in which greater learning is likely to occur (Hein, 1998; Kolb, 2000). “Minds-on” echoes the observation, reflection, and analysis considered central to effective experiential learning.

Some have suggested that experiential approaches are particularly effective for teaching science, and that agriculture is an appropriate experience for teaching science (Mabie & Baker, 1996). Mabie and Baker (1996) recommended using agricultural experiences to teach science process skills and to generate excitement for learning.

Informal Learning

Informal learning refers to learning that occurs in non-school settings, in a less formal fashion than classroom learning. As an out-of-school learning activity, a field trip may provide a context for informal learning. Theories of informal learning maintain that learning should be situated in the context of real life and that connections between school-based learning and out-of-school learning are essential (Banks, Au, Ball, Bell, Gordon, Heath, Lee, Lee, Mahiri, & Zhou, 2007; Scribner & Cole, 1973). McComas (2006) noted that informal learning supports cognitive, affective, and psychomotor domains and contextualizes learning with personal, social, and

physical elements. He argued that neglecting the broad range of out-of-school opportunities unnecessarily limits learning.

Despite the ubiquitous association of learning with school, most learning across the life span actually occurs outside of schools (Banks et al., 2007; Falk, Storksdieck, & Dierking, 2007). Positing that if educators made use of students' out-of school learning, the achievement gap between marginalized and mainstream students might be reduced, the LIFE Diversity Consensus Panel (Banks, et al., 2007) recommended that educators and policy makers understand and build upon the learning that occurs in homes and communities. Informal learning settings may also provide appropriate learning opportunities for learners who perform poorly in school settings, motivating them to learn both within and outside of school (Hofstein & Rosenfield 1996; Tran, 2006).

Place-based Education

Place-based education builds on theories of experiential learning and informal learning to advocate using the local community and environment as a starting point for teaching (Sobel, 2005) and connecting educational endeavors with the community (Gruenewald & Smith, 2008; Smith, 2002). Place-based education grounds learning in students' local, lived experience (Smith, 2002) and can take a variety of forms. It can involve interviewing neighbors and relatives about their experiences or views, investigating water quality in a local stream, participating in local city planning efforts, or visiting a local farm and learning about the food it produces. Visits to a local farm may be a component of a place-based curriculum.

Emphasizing hands-on, real-world learning experiences in both the natural and built environments, place-based education has been found to increase academic achievement, help students develop stronger ties to their communities, enhance appreciation for the natural world,

and create a heightened commitment to serving as active, contributing citizens (State Education and Environment Roundtable, 2000; Glenn, 2000; Lieberman & Hoody, 1998; Sobel, 2005).

Place-based education seems to go against the current trends toward standardization and testing (Martina, Hursh, & Markowitz, 2009; Nichols & Berliner, 2005; No Child Left Behind Act of 2001). However, a number of studies have explored the effectiveness of place-based curricula in student learning and have found that students learn more effectively within a place-based context (Lieberman & Hoody, 1988; State Education and Environment Roundtable, 2000), have higher test scores (Bartosh, Tudor, Ferguson, & Taylor, 2006; Emekauwa, 2004), exhibit reduced behavior problems (American Institutes for Research, 2005; Liberman & Hoody, 1988), have improved problem-solving and critical thinking skills (Ernst & Monroe, 2004), and are more excited about learning (Emekauwa, 2004; Lieberman & Hoody, 1998). Place-based programs have also been credited with building community partnerships (Emekauwa, 2004). Similarly, elementary school students who had once-a-week, hands-on gardening activities showed significant improvement in science achievement scores over students who did not experience such activities (Smith & Motsenbocker, 2005). In a middle school science classroom, consideration of real-world questions generated more collaborative activity among students and inspired them to take responsibility for their own learning (Crawford, Krajcik, & Marx, 1999).

Glenn (2000) suggested that place-based education was “a natural way to integrate curriculum around issues of interest to students and teachers” (p.3). As with informal learning approaches, Lieberman and Hoody (1998) observed that this type of education was particularly effective for students with less common learning styles and for at-risk students. They argued that breaking down the barriers between disciplines helps students to develop a coherent and complete understanding of their world, and to make connections between their learning in school

and the world outside. Smith (2007) further suggested that a focus on real-world problem-solving could impart to children a sense of their own individual agency and collective capacity to create change. It seems, then, that place-based education has tremendous potential to improve student learning and performance, even in this era of accountability and standards.

Museum

The term museum may refer to a variety of informal educational institutions, including art and history museums, science centers, zoos, arboreta, botanical gardens, science centers, and living history centers, among others (Falk & Dierking, 1992; Falk & Dierking, 2000). Given this definition, an educational farm may be considered a type of museum, and the museum literature that informed this study is considered here.

Both factual and affective learning occurs in museums (Dierking & Falk, 1994), and Rennie and McClafferty (1996) observed that enjoyment is an important part of the science center experience. Dierking & Falk (1994) found that visitors' agendas in visiting a museum affect their learning.

A contextual model of learning (Falk & Dierking, 2000; Metz, 2005) has been suggested as a framework for field-based and museum-based learning experiences. This model emphasizes that all learning occurs within three overlapping contexts: personal, sociocultural, and physical. The learning that occurs during a museum visit depends on an individual's personal background, the social interactions he or she has during the trip, and the physical environment encountered. This model may provide a useful framework for understanding the multitude of factors affecting visitor learning in a science museum (Falk & Storksdieck, 2005). Similarly, Rennie and McClafferty (1996) suggested that visits to science museums be considered in the context of visitors' experience both within and outside the museum.

Prior experiences and understanding influence learning as visitors make meaning of their experiences in a museum (Anderson, Lucas, & Ginns, 2003; Stocklmayer & Gilbert, 2002). This view of museum learning appreciates prior knowledge, personal active involvement in knowledge construction, and the role of present knowledge in shaping future learning. It also emphasizes the dynamic nature of knowledge – that subsequent learning can change and restructure one’s earlier understanding. Stocklmayer and Gilbert (2002) saw museum learning as an interaction between a visitor’s prior understanding and his or her current experience in the museum, while remembering past, related, experiences. This approach to museum learning recalls Dewey’s (1938/1997) principle of continuity of experience, in which each learning experience is influenced by prior experiences and in turn influences future experiences.

Science museum educators have been found to focus predominantly on nurturing interests in science and learning, as opposed to cognitive learning outcomes (Davidsson & Jakobsson, 2009; Tran, 2006). Despite its short-term nature, science museum educators regarded a school field trip to the science museum, not as a one-time event, but as part of a continuum of visits to such institutions (Tran, 2006).

Field Trips

Students and teachers across the country take field trips for a variety of reasons. A field trip has been defined as “any journey taken under the auspices of the school for educational purposes” (Sorrentino & Bell, 1970). Field trips can involve visits to science centers, museums, parks, nature centers, firehouses, and farms, among other locations.

Benefits of Field Trips. Field trips can be an effective way to complement learning in the classroom (Braund & Reiss, 2006; Dillon & Brant, 2006; Flexer & Borun, 1984; Orion, 1993; Preusch, 2010; Price & Hein, 1991). In addition, field trips offer a variety of other

benefits. The value of excitement and enjoyment should not be discounted, as this enthusiasm can be transferred back to the classroom setting to increase student engagement (Price & Hein, 1991; Rennie & McClafferty, 1995). Experiencing subject matter in a stimulating environment (Rennie & McClafferty, 1995) may kindle interest (Flexer & Borun, 1984) and improve student attitudes toward the subject or toward learning in general (Braund & Reiss, 2006; Carlson, 2008). In addition, low-performing students often experience success in the non-school setting (Price & Hein, 1991). Field trips can facilitate the transition from concrete to abstract understanding:

Students could view slides of a dune and investigate quartz grains in the laboratory, but only climbing the back and gliding down the steep front slope of a sand dune, during a field trip, could provide them a direct sensorimotor experience of learning about the dune and its structure (Orion, 1993).

Students may learn new ways of working together or discover new skills or leadership abilities during a field trip (Price & Hein, 1991). Teachers' expectations of students may improve (Price & Hein, 1991). Lastly, a field trip represents a common experience that can be called on later to enhance learning in the classroom (Rennie & McClafferty, 1995).

Field Trip Learning. A number of studies have demonstrated the learning that occurs on field trips (DeWitt & Storksdieck, 2008; Powers, 2004; Rickinson, Dillon, Teamey, Morris, Choi, Sanders, & Benefield, 2004). Field trip learning may include cognitive, affective, and social aspects. However, it is important to realize that field trips are not necessarily “better” or “worse” learning settings than classrooms; rather, field trips complement classroom settings, and may be most effective as opportunities for exploration, discovery, and first-hand experiences

(DeWitt & Storksdieck, 2008). Field trips offer tremendous learning potential, but this potential may not always be realized (DeWitt & Osborne, 2007; DeWitt & Storksdieck, 2008).

Bamberger and Tal (2008) reported that students connected field trip learning to both in and out of school learning. However, it seems that students are most likely to make those connections that are explicitly facilitated by the teacher (Davidson, et al., 2010).

Orion and Hofstein (1994) found that the factors that had the greatest influence on student learning on a field trip were those that related to preparation of students for the field trip and the place of the field trip in the curriculum structure. Similarly, Rennie and McClafferty (1995) observed that “learning is influenced by the extent to which students are familiar with the setting, their prior knowledge, the match between the cognitive level of students and the thought processes required by the exhibits, the degree of structure of the visit, the provision and nature of the cues for learning, and the social aspects of the visit” (p. 179). In a review of field trip literature, DeWitt and Storksdieck (2008) suggested that a moderate amount of structure, while still allowing for free exploration, might maximize learning outcomes.

It was noted above that one’s agenda in visiting a museum impacts one’s learning. Similarly, the learning students experience as a result of a field trip are clearly related to the aims and goals of the trip:

If the purpose of a visit is essentially related to entertainment, such as a reward for the students at the end of term, a social experience, or a change of pace, the learning outcomes will be quite different from those of visits which are structured to perform a specific role in the sequence of school work. (Rennie & McClafferty, 1995)

This observation illustrates the importance of the teachers' goals when they take classes on field trips.

Formal and informal education on field trips. Field trips to science centers, farms, and other informal educational institutions bring together educators from different contexts. Classroom educators may come with a different set of expectations and approaches to teaching than educators from more informal contexts. For example, in a case study of a fourth grade field trip to an environmental education site, Preusch (2010) found that the site educator and classroom teacher had different aims in conducting the field trip. Similarly, Tal and Steiner (2006) found that teachers and museum educators had different expectations of what a teacher's involvement should entail on a field trip to a museum.

Whose responsibility is it to bridge this gap? Is it the job of the informal educator or the classroom teacher to ensure a good "fit" between the field trip and classroom learning? Bitgood (1993) argued that the goals, content, and objectives of field trip programs should be negotiated between the school and the museum. In contrast, some have suggested that it is the informal educator's role to consider teacher practice, teacher objectives, and contextual factors in planning field trips (Anderson & Zhang, 2003; DeWitt & Osborne, 2007; DeWitt & Storksdieck, 2008). It has been suggested that informal institutions are responsible for articulating their contributions to schools and for helping teachers use their resources more effectively (Bevan & Semper, 2006; Phillips, Finkelstein, & Wever-Frerichs, 2007).

Museum educators have long seen their work with schools as being an important part of their mission (Bevan & Semper, 2006). Most informal science institutions offer programs to support teachers, students, and schools (Agar, 1980; Phillips, et al., 2007; Wetterlund, 2008) and give high priority to these programs (St. John, Dickey, Hirabayashi, & Huntwork, 1996). Such

programs are not only field trips, of course; they also include teacher institutes and workshops, pre-service programs, curriculum development, and outreach programs.

Communication and collaborative planning of the field trip between formal and informal educators may help to merge the classroom and museum contexts (Anderson, et al., 2006; Metz, 2005). But there is often limited communication between the classroom teacher and informal educator prior to a field trip (Tal & Steiner, 2006). Clear delineation of roles and responsibilities for classroom teachers and museum educators may help the two contexts to mesh more effectively (Tran, 2006).

In order to help teachers make better use of the learning opportunities afforded by school trips to museums, DeWitt and Osborne (2007) proposed that museum educators recognize the different context of classroom teachers, adopt the perspective of teacher, provide structure for the students, encourage joint productive activity, and support dialogue, literacy, and research skills. Most importantly, museum educators must connect school context and museum context. They suggest that these guidelines may help to maximize student learning.

Integration of field trips with curriculum. Field trips that serve as “events” tend to be less effective educationally than those that are well integrated into the classroom curriculum (Olson, Cox-Petersen, & McComas, 2001; Orion & Hofstein, 1994; Rennie & McClafferty, 1996). The most commonly expressed reason given by teachers for taking a field trip was to connect with curriculum (Anderson, et al., 2006; Kisiel, 2005). Similarly, teachers reported curricular fit to be their main concern in selecting a field trip (Anderson & Zhang, 2003). However, despite these stated aims, some have found that few teachers truly integrate a field trip into their curriculum, or assess the success of a field trip based on curricular learning (Anderson & Zhang, 2003; Kisiel, 2005; Orion, 1993). Taking a broader view of integration, however,

Kisiel (2005) concluded that teachers' use of field trips ranged from full integration with the curriculum to implicit or opportunistic connections. Anderson and Zhang (2003) suggested that this expressed interest in curricular connections might be to justify field trips and lend them legitimacy.

In order to better understand what makes a field trip successful, Orion and Hofstein (1994) sought to identify critical factors that influence a student's ability to learn on a field trip. In a cross-case inductive analysis of geology field trips, including background questions that assessed student attitudes toward field trips and geology, a content test, observation during field trips, and teacher self report, they found that the most influential factors on student learning were student preparation for the field trip and the place of the trip in the curriculum structure. When the field trip was placed at the end of the unit, they found it was treated more as an outing than as a learning experience. They suggested that "a field trip should be planned as an integral part of the curriculum rather than an isolated activity" (p.1117) and recommended placing a field trip early in the curriculum as a means for concretization to enhance learning. Olson, et al. (2001) echoed this finding, arguing that teachers should shift their focus from the field trip as an event to a learning experience congruent with regular curriculum.

It is clear that field trips must be well integrated into the rest of the curriculum in order for them to be most effective (Metz, 2005; Olson, et al., 2001; Orion & Hofstein, 1994; Rennie & McClafferty, 1996). As appealing as this may sound, how do educators put it into practice effectively? As Hofstein and Rosenfield (1996) observed, "While we have good reason to believe that informal learning experiences can enrich school science, we know relatively little about how these experiences can best be integrated into school curriculum" (p.107). Even if the

teacher sees an implicit connection between field trip and classroom, it may be beneficial to make these connections explicit for students (Bartosh, Mayer-Smith, & Peterat, 2006).

Science museums and other informal learning centers often provide teachers with pre-visit and post-visit activities in order to encourage integration of a visit with classroom curriculum (Wetterlund, 2008). Most studies on integration of field trips with curriculum have focused on the pre-trip activities and student preparation for the trip. In contrast, Anderson et al. (2000) explored the influence of post-visit activities on subsequent learning and knowledge construction. Their study focused on the interrelationships between learning in school, home and informal settings. Case studies of two students during and after a field trip to a science center found the students constructing and reconstructing their personal knowledge of concepts over the course of a series of integrated activities.

Novelty. Field trips can be exciting for students because they involve going to a new place. But the very newness of the location may in fact hinder the accomplishment of educators' learning objectives (Falk, Martin, & Balling, 1978; Martin, Falk & Balling; 1981, Orion & Hofstein, 1994; Gottfried, 1979; Olson et al, 2001; Orion, 1993). Martin, et al. (1981) found novel environments to be poor settings for imposed task learning. Students may need to first explore a novel setting before being able to attend to field trip activities (Falk, et al., 1978; Carlson, 2008). Gottfried (1979) also emphasized familiarity with field trip setting to enable students to focus on learning assignments.

Beyond the newness of the setting, Orion and Hofstein (1994) argued that field trip novelty includes cognitive (concepts and skills), geographic (knowledge of the area) and psychological (reflects prior experience with field trips being about as learning or social

activities) aspects. They suggested that field trip preparation should address these three novelty factors to facilitate meaningful learning during the trip.

Pre-visit activities are one way to reduce novelty and help students to focus (Haynes, Pieper & Trexler, 2005). An alternative novelty-reduction strategy involves orientation activities when students first arrive at the field trip site, to concentrate their need to explore their environment, allowing other learning activities to follow.

However, while too much novelty can hinder learning, some novelty may encourage it by stimulating interest and exploration (Carlson, 2008; Falk, et al., 1978). “Novelty, and the very powerful needs for exploration it generates, is an extremely important educational variable. The challenge for educators is to harness this variable to enhance rather than hinder our educational objectives” (Falk, et al., 1978). Thus, although defining the ideal level of novelty is not easy, it is clear that novelty must be balanced with preparation in order to optimize learning conditions.

Student Engagement and Affective Learning. Field trips can provide both content learning and affective learning (DeWitt & Osborne, 2007; Dierking & Falk, 1994; Rennie & McClafferty, 1996); that is, students may learn facts, but they also may learn that science is fun, or that they enjoy spending time with animals. Though often overlooked, these affective developments are no less important than factual information learned (Price & Hein, 1991).

Davidson, et al. (2007) observed that students particularly value the social aspect of field trips. They suggested harnessing student desire for social interaction and encouraging student choice to engage students and motivate learning.

Teacher motivation and perceptions. Falk (2006) noted that people’s motivation in attending a museum affects what they learn and remember; similarly, learning on field trips is affected by the goals of the trip (Rennie & McClafferty, 1995). *Why* students and teachers attend

field trip venues may influence whether their learning is more factual or more affective, or something else entirely. Rennie and McClafferty (1995) suggested that the most important decision a teacher makes in integrating a field trip into a curriculum involves why the class is taking the field trip. The reason for the trip will dictate the best ways to prepare the students and the best types of activities for the trip.

Teachers may have a range of motivations for taking field trips, and a teacher may have multiple goals for a single trip (Anderson, et al., 2006). DeWitt and Storksdieck (2008) argued that teachers' motivations for field trips might be complex and multifaceted. Classroom teachers may take students on field trips to complement and supplement classroom instruction, to broaden students' experiences, to improve cognitive or social abilities, or to introduce students to community resources (Falk, et al., 1978; Gottfried, 1980; Tran, 2006).

In comparing case studies of field trips to a zoo, Davidson, et al. (2007) found field trip learning to be strongly influenced by the context of the classroom, including the teacher's agenda, values, and views on learning. Classroom teachers must have clear and explicit learning goals to maximize the learning potential of the field trip. The agenda of the site educator appears to have less influence on student learning. In order for informal educators to impact student learning, then, they need to work closely with classroom teachers and understand the teachers' goals and agendas.

Barriers. Not surprisingly, there are a number of barriers to field trips. Transportation, money, large class size, administrative procedures, school scheduling, and teacher time and effort are some of the factors that teachers report making it more difficult for them to take field trips (Anderson, et al., 2006; Michie, 1998). In a review of 150 studies on outdoor learning, Rickinson et al. (2004) found the following barriers: fear about health and safety, teachers' lack

of confidence, curriculum requirements, and shortages of time, resources, and support. Additional barriers may include the teacher's lack of familiarity with and confidence in the setting, difficulty in connecting field and classroom learning, and the need to justify the experience in a culture of accountability (Bartosh, et al., 2006).

Too many logistical and psychological barriers may prevent teachers from organizing valuable field trips. Bartosh, et al. (2006) noted the need to acknowledge these challenges in order to address them. Some of these barriers might be reduced when the teacher has experienced the educational setting, whether through professional development or a prior year's experience (Bartosh, et al., 2006; Olson, et al. 2001).

Promising Practices. In considering promising practices for field trips, both the formal and informal educators have a role to play in ensuring an effective field trip: "Best practice for field trips cuts both ways" (DeWitt & Storksdieck, 2008, p. 190). As suggested by the literature, approaches to effective field trips include:

- Have clear learning goals and know *why* you are taking the trip (Carlson, 2008; Davidson, et al., 2009; Rennie & McClafferty, 1995)
- Structure trips with learning in mind and use teaching methods and activities appropriate to the setting (Carlson, 2008; Olson, et al., 2001; Price & Hein, 1991)
- Utilize activities which are unique to the field trip setting and which cannot be conducted effectively in the classroom (Orion, 1993; Price & Hein, 1991)
- Integrate the field trip into the classroom curriculum (Carlson, 2008; Olson, et al., 2001; Orion & Hofstein, 1994)
- Prepare students for what to expect (Carlson, 2008; Olson, et al., 2001; Rennie & McClafferty, 1995)

- Classroom teachers should be prepared, both for using field trips in general and for the specific field trip site; ideally they should visit the site before the field trip (Carlson, 2008; Olson, et al., 2001; Price & Hein, 1991; Rennie & McClafferty, 1995)
- Schedule field trips early in the unit, rather than as a culminating activity; one approach is: preparatory unit, field trip, summary unit (Orion, 1993)
- The field trip should be process-oriented rather than content-oriented (Orion, 1993)
- Include time for orientation and exploration (Price & Hein, 1991; Rennie & McClafferty, 1995)
- Provide structure but be flexible and allow time for exploration (Price & Hein, 1991)
- Begin with concrete experience and observation, follow with concepts and vocabulary (Price & Hein, 1991; Orion, 1993)
- Include social time and fun (Davidson, et al., 2007; Price & Hein, 1991; Rennie & McClafferty, 1995)
- Post-trip activities (Rennie & McClafferty, 1995; Anderson, Lucas, Ginns & Dierking, 2000)
- Communication between classroom teacher and informal educator
- Refer back to trip experiences later, to capitalize on enthusiasm and to help students understand connections between trip and classroom learning

Important points from prior literature

In the context of this study, key points from the literature include:

- The goals of the classroom teacher have tremendous impact on a field trip. Teachers may have multiple and complex goals for a field trip. Although the official aim is usually

connection to curriculum, the real goal may be something else (Anderson, et al., 2006; Anderson & Zhang, 2003; Davidson, et al., 2007; DeWitt & Storksdieck, 2008; Kisiel, 2005; Rennie & McClafferty, 1995).

- It is important to mesh the formal and informal contexts in a school field trip to an informal educational institution (Anderson, et al., 2006; Bitgood, 1993; Metz, 2005).
- A variety of barriers constrain the taking of field trips, including transportation, money, class size, administrative procedures, school scheduling, and teacher time and effort (Anderson, et al., 2006; Michie, 1998; Rickinson, et al., 2004).
- A variety of benefits are possible on a field trip, including cognitive, affective, and social learning (Braund & Reiss, 2006; Carlson, 2008; Dillon & Brant, 2006; Flexer & Borun, 1984; Orion, 1993; Preusch, 2010; Price & Hein, 1991; Rennie & McClafferty, 1995).
- Place-based and experiential education offer valuable approaches that may inform field trips (Dewey, 1938/1997; Gruenewald & Smith, 2008; Hein, 1998; Kolb, 1984; Kolb, 2000; Lieberman & Hoody, 1998; Smith, 2002; Smith, 2007; Sobel, 2005).
- Experiential learning theory suggests the importance of combining concrete experience and reflection on the experience (Dewey, 1938/1997; Hein, 1998; Kolb, 1984; Kolb, 2000; Lewin, 1951).
- Prior experience and prior knowledge are important to learning (Anderson, et al., 2003; Dewey, 1938/1997; Falk & Dierking, 2000; Metz, 2005; Stocklmayer & Gilbert, 2002).
- Connecting school learning to real life can be valuable (Banks, et al., 2007; Dewey, 1938/1997; Hopkins, 1994; Scribner & Cole, 1973; Smith, 2002; Sobel, 2005).
- It is important to integrate field trips with the curriculum (Metz, 2005; Olson, et al., 2001; Orion & Hofstein, 1994; Rennie & McClafferty, 1996).

- Affective learning and enjoyment in learning are important (Braund & Reiss, 2006; Carlson, 2008; Flexer & Borun, 1984; Price & Hein, 1991; Rennie & McClafferty, 1995).

Summary

A range of literature may bear on school field trips to farms, including that discussing informal and experiential education, place-based education, field trips, and museum learning. Youth do learn in informal settings and on field trips, but the nature of that learning may depend on students' prior experiences and knowledge, and on the way in which the learning experience is designed and the field trip is conducted. Learning will also be influenced by the goals of the classroom teacher and the ways in which the field trip is integrated with the classroom curriculum. Other elements important to farm field trips include the importance of student and educator perspectives, connections between learning contexts and between components of learning, and curriculum fit. Despite the likely benefits of farm field trips, a number of barriers may inhibit their occurrence.

This study explores the perceptions of educators and students surrounding field trips to educational farms. Some extrapolation has been necessary in applying the above literature to farm-based education field trips, as none of the literature reviewed speaks directly to field trips to educational farms and the goals and benefits associated with such field trips. The existing literature has left some questions, such as: What do field trips with greater educational potential look like? Why is place-based education not used more? Are these theoretical frameworks appropriate for farm-based education field trips? How can we bridge the gap between formal and informal? How can educators best connect field trip and classroom learning? This study addresses some of these gaps. The following chapter discusses the approach taken and the methods used by this study to do so.

Methods

This study explored the perceptions of farm educators, classroom teachers, and students about farm-based education field trips. Farm-based education is a form of experiential, interdisciplinary education that connects people to the environment, their community, and the role of agriculture in their lives. Farm-based education promotes land stewardship, encourages the value of meaningful work, and supports local food systems. A variety of types of farms can fulfill this educational purpose – large and small, for-profit and non-profit, producing various farm products. Educational farms can serve visitors ranging from infants to adults (Farm-Based Education Association, 2011).

Field trips are a common type of educational programming offered by educational farms. In order to better understand the expectations and perceived benefits associated with farm-based education field trips, this study used a multiple case study design with both within-case and cross-case inductive analysis. The Institutional Review Board (IRB) of Cornell University approved this study for exemption from IRB review.

Research Questions

This study sought to answer the following questions:

1. What are the benefits of field trips to educational farms?
 - a. As perceived by classroom teachers?
 - b. As perceived by farm-based educators?
 - c. As perceived by students?
2. How do the goals of classroom-based teachers and farm-based educators align with one another?
 - a. What are the goals of farm-based educators in hosting field trips?

- b. What are the goals of classroom teachers in taking classes on field trips to educational farms?
 - c. How do these goals align with one another?
3. What do youth learn or take away from field trips to educational farms?

Researcher Background

It is important in this type of research to acknowledge the researcher's background because the researcher is an active part of creating the data (through interviews) and analyzing it (Lincoln & Guba, 1985). Some of the researcher's background is presented here in order to acknowledge potential bias and clarify the researcher's perspective.

I grew up in New York City, but spent weekends and summers at my grandparent's house, with horses, chickens, vegetable and flower gardens, hayfields and woods. This combination of experiences may have sparked my realization of gaps in agricultural literacy among my urban peers; teaching garden-based programs to urban youth served to strengthen this awareness. Work on a small organic farm further formed my belief in the importance of agricultural literacy and the value of farms. A strong background in informal, environmental, experiential, and place-based education informs my understanding of and interest in farm-based education. I believe strongly in authentic education, the value of farms, and the importance of maintaining a connection to the land, to each other, and to the source of our food. Epistemologically, I tend toward a constructivism, recognizing the importance of perceptions in our construction of reality.

The perspective that informs this study conforms for the most part to what Lincoln and Guba (1985) called the Naturalistic Paradigm. Their paradigm consists of an ontology that

allows for multiple constructed realities and an epistemology that acknowledges interaction and influence between knower and known. Inquiry cannot be divorced from values, and the aim of inquiry is to develop working hypotheses that describe the case at hand.

Participants

Farm Sites. Educational farm sites were selected for this study based on the following criteria: (1) they had established farm-based education programs (at least ten years old), (2) they had hosted field trips for at least five years, (3) they hosted one-day field trips for school groups, (4) they included education in their missions, and (5) they balanced a mix of education and production. The first two criteria were chosen to avoid farms in the initial stages of startup of farm, education, or field trip operations. At such a stage, an educational farm may be struggling to simply accomplish things, to figure out its mission and aims, and to figure out how field trips will work for them. This study sought not to follow educational farms through the struggling stages of startup and hosting a first field trip, but rather to discover the goals of farm educators who had come to understand field trips in their farm's context. The third criterion ensured that the farm conducted the type of program that this study sought to investigate. The last two criteria ensured that the farms selected were representative of farm-based education; education must be seen as important and the mix between education and production is a constant balancing act for educational farms.

Everdale Organic Farm and Environmental Learning Center. Everdale Organic Farm and Environmental Learning Center is located on a fifty-acre property in Hillsburgh, Ontario, about an hour's drive northwest of Toronto. It aims to teach sustainable living practices and operate a model organic farm.

Mission Statement:

We have come together at Everdale Learning Centre to create an exemplary, not-for-profit facility for co-operative education. We strive to demonstrate, in practical ways, the enormous promise of sustainable agriculture, renewable energy, and alternative building methods. We shall provide a variety of hands-on educational experiences (such as intensive apprenticeships, short courses, workshops, and school field trips) for people of all ages, cultures and socioeconomic backgrounds. We are committed to forging partnerships with other educators and working together democratically, in an open, questing spirit.

The Everdale site has been an educational setting since 1966, when it opened as Canada's first free school. The property was little used from 1975-1996, at which time its present managers began farming it. In its current incarnation, Everdale began in 1998. Everdale encompasses a working organic farm, with 15 acres of vegetables, mixed livestock, a sustainable model home, classroom, forests and meadows. Its primary products are vegetables, marketed through Community Supported Agriculture (CSA). The farm has an educational charter and nonprofit status. Everdale has a year-round staff of 10, plus seasonal interns and volunteers.

Everdale offers a variety of hands-on educational experiences:

- Internships – season-long training programs for aspiring farmers, leading to an Organic Farming Certificate
- Farm planning courses aimed at future or beginning farmers
- Weekend courses and workshops for adults and families – including programs such as canning and food preservation, vegetable growing, chicken care, etc.
- Field trips (matched to provincial curriculum)

- Farmers in the Schools – educator visits to local classrooms during the winter months to teach students about agriculture
- Public tours of the farm on weekends, for anyone who shows up
- Summer camps – weeklong camps for children ages 4-16, participating in farm activities and exploring the connections between the farm’s fields and their dinner plates

The educator interviewed at Everdale had a background in midwifery and informal education. In 1994 she moved to Everdale in order to farm with her family, and took charge of building the educational mission of the farm. She believes strongly in sustainable agriculture and she and her family have their own family farm on the Everdale site. She looks to take advantage of whatever is happening on the farm to make a field trip exciting.

Gorman Heritage Farm. Gorman Heritage Farm is a 120-acre working and educational farm, located in Evendale, Ohio, about 10 miles north of Cincinnati.

Mission Statement:

The mission of Gorman Heritage Farm is to provide people the opportunity to explore and learn the history, methods and values of a working family farm in a natural setting.

Gorman Farm was owned and operated by one family from the early nineteenth century until 1996. At that time, Jim and Dorothy Gorman, brother and sister and both childless, turned the farm over to the Cincinnati Nature Center, which developed the property into an educational farm. In 2003, the Nature Center passed the farm to the Village of Evendale, which created the nonprofit Gorman Heritage Farm Foundation to manage the farm.

Gorman Heritage Farm consists of 30 tillable acres, a farmyard with a variety of animals, a garden, 40 acres of wooded hillside, and a natural pond. Flower and vegetable crops are

planted with a rotation of corn, alfalfa, rye and wheat. Sunflowers are Gorman's signature crop. Animals serve mainly educational purposes, but some provide meat and eggs for market. The paid staff of eight includes three educators and two farmers, and is supported by a strong cadre of volunteers. Students and volunteers assist with animal care tasks, and guests are invited to visit with the animals.

Gorman offers a variety of educational programming:

- School field trips – primarily preschool, but offered up to grade 8
- Summer camps and school vacation camps
- Adult and family workshops on such topics as beekeeping, flower arranging, and composting
- Casual visitors can explore the farm or utilize walking trails in the woods
- Festivals such as the annual Sunflower Festival in early October, celebrating the sunflower harvest, and Shear Excitement, highlighting spring, sheep farming, and textile arts

The educator interviewed at Gorman has a background in music, and developed an interest in agriculture when he was in college. He first became involved with the farm as an agricultural intern in college, after which he was a camp counselor and worked in the office at the farm. He then taught music to students in Kindergarten through Grade 8 for four years before returning to Gorman as an educator. He sees farm-based education as being a subset of experiential education, and feels strongly about ensuring student learning from the farm experience.

Shelburne Farms. Shelburne Farms is a 1400-acre environmental education center, farm, and National Historic Landmark on the shores of Lake Champlain in Shelburne Vermont.

Mission Statement:

Our mission is to cultivate a conservation ethic for a sustainable future.

William Seward and Lila Vanderbilt Webb created Shelburne Farms as a model agricultural estate in 1886. The estate encompassed 3800 acres at its peak in the early 1900's and was dedicated to demonstrating innovative agricultural practices and a horse breeding enterprise, as well as being a grand residence for the Webb family. In 1972, the family created the educational nonprofit organization that now owns and operates the farm.

Shelburne Farms consists of 400 acres of woodland, a seven-acre market garden, pastures, 125 grass-fed Brown Swiss dairy cows, a cheesemaking operation, a children's farmyard and children's garden, and an educational center. Shelburne's property also hosts an inn and restaurant, a woodworking shop, and a school. Shelburne's primary farm product is cheese from their milk, but the market garden also supplies a CSA and the kitchen at the inn. Shelburne Farms has a year-round staff of about 60, plus seasonal staff, interns, and volunteers.

Shelburne's educational programming includes:

- Field trips for Kindergarten through Grade 8
- Educator workshops, for both formal and informal educators to help classroom teachers use the farm or other outdoor spaces, and to help farmers and other informal educators connect with schools
- Internships and apprenticeships in education and in the market garden
- Preschool programs – morning programs on the farm for ages 2-5
- Summer camp and school vacation camp
- Informal activities at the children's farmyard – with a variety of animals from around the farm and a staff member to facilitate, the children's farmyard is always open for visitors

- Partnerships with local schools, environmental education organizations, and farm-to-school programs

The educator interviewed at Shelburne has been working at the farm for two years. Prior to working at Shelburne, she had lived and worked on farms, and had taught environmental education in New York City. She thinks about farm-based education in the context of place-based education, and feels that it is important for youth to understand and appreciate the place where they live.

For additional information on participating farm sites, see Appendix A.

Teachers. Teachers interviewed taught pre-K through high school, and had experience ranging from one through 26 years of teaching. All teachers interviewed had minimal to no farming background, although many expressed concern for agriculture and its future. They all took their students on a field trip to one of the participating farms in the fall of 2010; one teacher took a second field trip in January 2011. Table 1 shows some of the characteristics of the teachers who participated in this study. Each participating teacher will be identified using a letter indicating the farm the teacher visited (E = Everdale, G = Gorman, S = Shelburne), followed by a number to distinguish multiple teachers visiting the same farm. For example, teacher E1 visited Everdale; the designation E1 refers to the same classroom teacher throughout.

E1 has been teaching for 10 years, and currently teaches third and fourth grade in a French immersion school. She teaches in French and works with two groups of students. She has each group for half the day; they spend the other half working with her English counterpart. This means that her students learn some subjects in English and some in French. Her first field trip to Everdale was the year before this study, and, having thought it a positive experience, decided to return with her class again. She has no agricultural background, but feels it is

important to eat local foods, and discovered Everdale through looking for local farms to buy from and support.

E2 also teaches the French side of third and fourth grade in the same French immersion school as E1. She had had little contact with Everdale before the field trip, as E1 had arranged the trip; although her class had visited Everdale the year before, she had not attended the trip. She has been teaching for 26 years, and although she has no agricultural background, she expressed concern about the loss of agricultural lands.

Table 1

Characteristics of participating teachers

ID	Farm Visited	Grade Taught	Years Teaching	# Prior Farm Trips	Agriculture Background/Perceptions
E1	Everdale	3	10	1	None, “important to support local farmers”
E2	Everdale	3	26	0	None, concerned about loss of agricultural land
E3	Everdale	11	10	0	None, “very highly media-influenced” perceptions of agriculture
G1	Gorman	1	6	3-4	Grew up in rural area, grandfather lived on a farm (farmed by tenant), corn de-tasseling as teenager
G2	Gorman	K	5	4	“City girl,” worked at Gorman as educator for a few months, no prior farm background
G3	Gorman	Pre-K	20	0	Minimal, annual apple-picking, husband from a farming community, “I think [farms] are great”
S1	Shelburne	K	25	20-30	None, concerned about struggling farmers
S2	Shelburne	5	1	0 (But has led farm field trips)	None until worked at Shelburne and another farm

Teaching is a second career for E3, and she has been teaching high school for 10 years at the high school she attended as a student. With a background in biology, she teaches mostly Grade 10 general science, but also teaches an eleventh grade environmental science elective. It was this class that she brought on a field trip to Everdale. E3 also has no agricultural background, and she described her perceptions of agriculture as being “very highly media-influenced.”

G1 is a first grade teacher, in her sixth year of teaching. She also does not have an agricultural background, but she grew up in a rural area, and her grandfather lived on a farm, although he rented the land out rather than farming it himself. As part of growing up in rural Ohio, she remembers corn de-tasseling as a summer job. She has used the one field trip she is permitted each year to go to Gorman for the past several years.

G2 has been teaching Kindergarten for five years, four of which have been at her current school. Prior to teaching she worked as the educator at Gorman for a few months, as a maternity leave replacement. She is a self-described city kid and had no connections with farms prior to her job at Gorman, when she gained a “big appreciation” for farming and fell in love with the farm.

G3 is a preschool teacher and administrator with 20 years of teaching experience. Her aim is really to follow students’ interests. Her field trip to Gorman grew out of the district’s tradition of preschool visits to farms as well as her students’ interest in animals. With a suburban upbringing, her connection to agriculture was limited to annual apple-picking trips and a job at Tractor Supply Company, during which she learned to identify pig farmers by their scent. However, she feels she has an appreciation for agriculture, and when asked about farms said, “I think they’re great.”

S1 is a Kindergarten teacher at a magnet school that focuses on sustainability. She has been teaching the K-2 age range for 25 years. As part of a special relationship her school has with Shelburne Farms, she takes her class on three or four field trips there every year. In addition, she organizes several “community” field trips, which involve walking to the local firehouse, bank, and other community resources. She also has a volunteer in her class who has a greenhouse, so her class visits the greenhouse as well. She has no background in agriculture, but feels that farmers are important to the community and expressed concern for struggling farmers.

S2 is a first-year teacher of fifth grade with a strong belief in place-based education. She had no experience with agriculture until she moved to Vermont in 2001 and worked at the food coop, where she was introduced to local farmers and the idea of local foods. Then she worked as an educator at Shelburne Farms, where she led field trips and became more interested in agriculture and worked in the gardens. She then took a job at a farm that worked with youth to produce food for the local school district. When she began teaching this year, she used her connections with Shelburne to arrange for a field trip for her students, even though she had missed the required lottery process in the spring. In addition to the trip to Shelburne, her students visited another local farm and regularly visit a senior center.

Students. Student participants in this study were in the classes of the participating teachers above, and attended field trips to the participating farms with their classmates and teachers in the fall of 2010; one group of students took a second field trip to the farm in January 2011. Students ranged from preschool through eleventh grade. All participating students lived in urban or suburban areas. Many of E1’s students were immigrants, with little experience in Canada. Of G3’s class of 16, nine are typically developing and seven have identified disabilities. Four of these students did not attend the farm field trip: two students in wheelchairs,

for whom transportation was not available, a nonverbal autistic student, and one student who was visiting a medical specialist on the day of the field trip.

Approach

Farm sites were selected based on the criteria listed above under *Farm Sites* as well as to represent three different geographical areas. To better understand the context in which these field trips occurred, the researcher visited each participating farm and observed a field trip at two of the sites (Everdale and Gorman).

At each farm site, the educator responsible for field trips was contacted by email and invited to participate in the study. Semi-structured interviews with the farm educators explored their educational goals, expectations, and experiences when students visit the farm. Farm educator interviews were conducted in August and September 2010, and ranged from 34 to 63 minutes in length, as shown in Table 2.

Table 2

Farm educator interview details

Educator	Date	# Minutes	# Words
Everdale	8/11/2010	34	5,998
Gorman	9/17/2010	63	11,001
Shelburne	8/23/2010	42	7,131

Farm educators were then asked to assist in contacting teachers who would be bringing their classes on field trips to the farm. Interested teachers were put in touch with the researcher, who provided more information about the study and scheduled an interview. Semi-structured interviews with teachers explored their educational goals and expectations in taking their students to visit a farm. A total of eight teacher interviews were conducted between October

2010 and January 2011, each lasting between seven and 26 minutes; these interviews are shown in Table 3.

Table 3

Classroom teacher interview details

Teacher	Date	# Minutes	# Words
E1	10/22/2010	10	2,057
E2	10/22/2010	7	1,273
E3	10/14/2010	23	4,872
G1	10/17/2010	24	4,212
G2	10/13/2010	19	1,304 ^a
G3	10/15/2010	26	3,962
S1	10/26/2010	26	4,458
S2	1/2/2011	24	3,765 ^b

^a due to interviewee's time constraints, 14 minutes of this interview was conducted on 10/13/10, and the remaining 5 minutes on 10/26/10; technical error prevented complete recording of the first portion of the interview, thus, number of words refers only to the second segment of the interview ^b poor audio quality prevented complete transcript; number of words is an estimate

Informed consent was obtained from each participant prior to the interview. A single interviewer conducted all interviews and took notes during the interviews. Each interview was followed by a written reflection and summary by the interviewer.

Teachers were then invited to use a post-visit questionnaire with their students, consisting of open-ended questions about their experience and learning on the farm trip. Older students completed these written questionnaires approximately one week after their field trip to assess their perceptions. Younger students responded using drawings, or teachers elicited oral information about student perceptions and learning. Interview scripts and student survey questions can be found in Appendices B and C.

Analysis

Inductive analysis of the data followed established models of inductive analysis (Addison, 1992; Crabtree & Miller, 1992; Creswell, 1998; Glaser & Strauss, 1973; Patton, 1980; Schatzman & Strauss, 1973; Warren & Karner, 2005; Yin, 1994). Interviews were recorded and transcribed verbatim using the transcription application service provider Medikin.

Transcriptions were reviewed and edited for accuracy. Interview transcripts and student responses were coded based on emergent themes. To ensure inter-rater reliability, a second rater coded a subset of three interviews. Both raters had experience with agricultural education, field trips, and qualitative research. After independently coding the interviews, the two raters discussed the coding until consensus was reached (Bamberger & Tal, 2008; Patton, 1980; Taylor & Caldarelli, 2004). A coding protocol was created (see Appendix D) based on this consensus and this protocol applied to the remaining interviews. Patterns were identified among the themes that emerged.

In order to ensure that participants' statements had been understood accurately, the Themes section of the Findings chapter (Chapter 4) was sent to participants for review. For each participant, his or her statements were bolded to facilitate their review. In addition, each participant's goals, as described in the interview, were listed. Participants were asked to review the section to see if they had been understood accurately; they were asked to let the researcher know if they felt any of their words had been misrepresented, or if they wished to elaborate. Two participants responded with small edits for clarity; one responded indicating her approval. The documents were re-sent to those who did not respond to the first request, and participants were informed that lack of response would be taken as approval; three additional participants responded, all stating approval of the interpretation. As participants had been informed that lack

of response meant approval, it is believed that the five participants who did not respond felt that they had been accurately understood.

Main goals and expectations of each farm-based educator and classroom teacher were identified. Commonalities and disagreements were sought among these goals and expectations across each unit of analysis. The units of analysis were the farm-based educators, the teachers, the students, and each farm-based education site taken as a whole (farm-based educator, classroom teachers, and students).

Lastly, students' self-reported learning and memories were used to better understand students' perceptions of their field trips and to assess whether or not their teachers' and farm educators' goals were met. In addition to the themes discussed above, student responses were coded for cognitive and affective learning and for the types of things students said they learned or remembered. These responses allowed for an understanding of what students perceived the benefits of the experience to be and what they felt they took away from their field trip to the farm.

Rationale

This study considered the perceptions of the three primary stakeholders in school field trips to educational farms: farm educators, classroom teachers, and students. The study began with the belief that the goals of classroom teachers and farm educators would influence students' experiences on a farm field trip. It further expected that the benefits perceived from a farm field trip would be determined by these experiences. Thus, it explored the goals of the classroom teachers and farm educators, the experiences of students, and the benefits perceived by all three groups. This multi-pronged approach was taken in order to explore the whole picture as much as possible, as recommended by Lincoln and Guba (1985). The multisite qualitative approach to

this study allowed comparison across farm sites without sacrificing within-site understanding (Herriot & Firestone, 1983).

Interviews are an effective way to access people's perceptions (Mason, 2002). Interviews were used as much as possible because this study was concerned with people's *perceptions* of field trips and in order to explore these perceptions in depth. Patton (1980) remarked that, "The purpose of interviewing is to find out what is in and on someone else's mind" (p.196). A central aim of this study was to explore what was in and on the minds of teachers and farm-based educators in conducting field trips.

A written or teacher-mediated approach was used with students in order to facilitate data collection from a greater number of students as well as to ensure student anonymity.

An inductive analysis was used because the researcher did not enter the process with *a priori* expectations of what educators and students believed. Rather, the study sought to discover these perceptions and anticipated that different individuals might perceive field trips differently. Inductive analysis is an effective way to identify multiple realities (Lincoln & Guba, 1985) and kept the study open to the variety of possible responses.

Trustworthiness

Credibility. Patton (1980) and Yin (1994) recommended using multiple sources of evidence to support the credibility of the findings; Lincoln and Guba (1985) also advised triangulation of sources to meet the criterion of credibility. Cresswell (1998) and Berg (1989) echoed this idea, suggesting that triangulation of sources improves the quality of research and to provide a more substantive picture. This study used three main sources of data – farm-based educators, teachers, and students – to address the questions of goals and perceptions from

multiple angles. Multiple sources of data ensure that this study's findings are not an artifact of one data source.

Participant review further supports the credibility of the findings (Lincoln & Guba, 1985). A list of each participant's identified goals and a preliminary discussion of themes discovered were sent to each participant for review to ensure accurate representations of their ideas.

Transferability. Transferability refers to the realm to which the study's findings may be generalized (Yin, 1994). Investigation of multiple farm sites helps to ensure that this study's findings are not specific to one farm site but may be generalized across farm-based education settings. Findings may be also generalized to other field trip venues, such as science museums or zoos, to the extent that the educational farm sites studied are representative of such other venues. Descriptions of the farm sites, educators and students provided in this chapter will assist transferability judgments, as contextual similarity of the museum venue in question will determine the extent to which the findings of this study should be applied (Lincoln & Guba, 1985).

Dependability. Similar findings across multiple farm sites demonstrate this study's dependability. Inter-interviewer dependability was assured through having one interviewer conduct all interviews. To establish inter-rater reliability in coding the interviews, a second rater coded a subset of three interviews. After independently coding the interviews, the two raters discussed the coding until consensus was reached (Bamberger & Tal, 2008; Patton, 1980; Taylor & Caldarelli, 2004). A coding protocol was created based on this consensus and this protocol applied to the remaining interviews.

Confirmability. Confirmability was established by an audit trail, as advocated by Lincoln and Guba (1985). For this study, the audit trail included the research proposal, audio recordings of the interviews, interview transcripts, interview summaries, researcher notes and reflections after interviews and farm visits, student questionnaire responses, and the coding and analysis process, including the coding protocol, coded transcripts, emergent themes, and explication of themes.

Summary

Farm-based educators at three educational farms were interviewed about their goals and expectations in hosting school field trips. Eight classroom teachers were interviewed about their goals and expectations in taking their classes on a field trip to these farm sites. Interviews were recorded, transcribed, and coded based on emergent themes. Commonalities and disagreements were explored among stated goals and expectations of farm educators and classroom teachers. Students were surveyed to understand their learning and impressions and to assess whether stated educational goals had been met. The aim of the study was to better understand school field trips to farms and their benefits.

The next chapter describes the themes discovered and goals identified through interviews with farm educators and classroom teachers about field trips to farms. In addition, it considers the responses of students to these field trips.

Findings

This study was designed to explore goals and experiences associated with school field trips to educational farms. At each of three educational farms, interviews were conducted with the farm-based educator and with classroom teachers visiting the farms with their classes; students participating in field trips to the farms responded to questions about their experience and learning. Data were coded based on emergent themes, and patterns identified among these themes.

This chapter describes the themes that emerged through the data analysis process. In addition, it discusses the goals of farm-based educators in hosting field trips and of classroom teachers in taking field trips to educational farms. Lastly, it addresses the learning and memories reported by students after field trips to farms. The aim of the analysis was to determine the benefits of field trips to educational farms as perceived by classroom teachers, farm-based educators, and students; the field trip goals of classroom teachers and farm-based educators and how they align with one another; and what youth learn or take away from field trips to educational farms. Classroom teachers are identified by their signifiers (for example, E1 or G2); a single letter (E, S, or G) refers to the farm educator at the corresponding farm.

Themes

Transcripts of interviews were coded based on emergent themes. The main themes that emerged were curricular connections, farm experience, agricultural literacy, local food, interconnectivity, sustainability, and field trip logistics. Each of these themes is discussed below; quotes have been edited for readability.

Theme: Curricular connections. A primary reason expressed for a field trip was curricular connections. Curricular connections are ways to connect the field trip with learning

standards, curriculum requirements and classroom activities. Both farm educators and classroom teachers looked for ways to connect the field trip to classroom learning and to the larger curriculum. Farm educators emphasized aligning their programs with state or provincial learning standards and trying to connect with the school curriculum as much as possible. For some teachers, the field trip was an integral piece of a much larger unit; other teachers saw the field trip as being more self-contained, though they still connected it to the classroom. Sometimes farm educators and classroom teachers collaborated to create field trips that effectively connected to the classroom. In addition, teachers used pre- and post-visit activities in the classroom to connect to the field trip. In some cases, these took the form of activities supplied by the farm educator for the teacher to use in the classroom before and/or after the trip. In other cases, teachers developed activities on their own that were related to the field trip. Pre- and post-visit activities ranged from brief class discussions to entire units.

Farm educators aimed to create field trips that connected with classroom curriculum. Gorman Heritage Farm is working with its local school district's curriculum director to integrate farm visits and classroom activities for all the fourth graders in the district. Field trips at Shelburne Farms "meet the state standards for the state of Vermont." Everdale Farm's programs are aligned with the provincial curriculum and can be adapted to meet specific needs of a teacher.

Teachers also worked to identify curriculum units or areas of study that they could link to farm field trips. Visits to a farm were used to support learning about subjects including animals, plants, soils, and communities. For a third-grade teacher, "There [are] two units that work really well with farm-based learning. One being plants and soils that we're studying [currently]. And the other one being urban/rural communities" (E1). A first grade teacher observed:

“[We’re studying] how different communities survive and what’s in different kinds of communities including a farming community, and how everybody relies on each other. So the farm field trip really gets into that because... they can see how [the farm] functions as a community” (G1).

In a preschool class, “We start the year really doing some exploration of farm animals and end the year doing an exploration on zoo animals” (G3). One teacher felt that the farm trip connected to class activities on a variety of levels:

Well, right now the children in Grade Three are doing plants and soils, so it relates very well to what we’re doing. We’re also, in Health, doing healthy eating, healthy living, so it relates. And we’re also doing a lot on the environment right now, and how to protect our environment, take care of it. So, going to an organic farm is a really good way for them to see that. (E2)

This teacher identified multiple classroom subjects that the farm field trip could support. However, she did not plan to use the farm trip to link all these subject areas to each other. Rather, she planned to make connections to the farm trip as opportunities arose. “Every time now that we talk about the unit, or we’re doing something, I can say, ‘Do you remember when?’ So I’ll make the connections with them. And I’m sure they will too” (E2). In a similar vein, another teacher said, “Anything they give me there [on the field trip], I’ll be bringing back and seeing where I can tie it in” (E3). This teacher did not have specific plans to integrate the trip at the time of our interview, but planned to take advantage of possible curricular connections opportunistically.

In fact, some teachers indicated that they needed to identify connections to learning objectives in order to justify a field trip. “It’s all about the learning objectives,” said a Kindergarten teacher (G2). For this teacher, learning objectives were central.

Subtheme: Farm educators collaborate with classroom teachers. Farm educators at both Shelburne and Everdale indicated that ensuring that a teacher’s needs were met was a main priority when conducting a field trip. Shelburne Farms consults a teacher advisory board about educational programming in order to ensure appropriate connections to classroom learning. The educator there makes an effort to understand teachers’ curricular needs:

Most of the field trips are really connected to what the teachers are doing...a lot of the stuff is designed to be not just a one-day experience but designed to be a part of a bigger unit and teachers seem to really like that.... I’m the person who’s the liaison to speak with the teachers and so I’ll connect with them before they come and find out what it is that they’re teaching this year. (S)

Teachers seemed to feel that the farm educators understood their needs and classroom objectives. “[Before the field trip, I told the farm educators] just generally about what I have to cover for the curriculum” (E3). This teacher was confident that if the farm educators understood her curriculum requirements, they would plan the trip accordingly. As she had not yet been on a field trip to Everdale, it was an expectation on her part. However, another teacher had been on field trips to Gorman in prior years: “I think this is our third year with Mike being there [as the farm educator], so they base their program around our learning objectives” (G2). Her experience bore out the hope of E3, as the farm educator had indeed planned the field trip program to meet her learning objectives.

Although all the farms offered standard field trip programs, sometimes farm educators designed custom field trips for teachers. One teacher observed: “They [the farm educators] asked ahead of time. I sent them our curricular map, and what our big questions or big ideas are, and then they took it from there [to design the field trip]” (S2). This teacher explained further how they had worked with the farm to develop both their curriculum and their field trip:

We had invited [Shelburne Farms] in, when we created our curriculum, one of their employees came to our planning session and gave us lots of ideas there too. And then I sent it to their field trip coordinator who ...created a field trip to fit most of our goals. (S2)

A teacher at the Sustainable School Project, which works closely with Shelburne Farms, said:

We design pretty much our own field trips, based on our units of study, as part of our being partners [with the farm].... Because we have this connection and partnership, we really have the opportunity to sit with the farm folks, and really plan out exactly how it would connect to our curriculum, and what we really want. (S1)

In these two cases, farm educators and classroom teachers worked closely to integrate curriculum planning and field trip. The educator at Everdale recounted a field trip the prior spring in which a teacher was interested in bringing a high school class to visit the farm, but worried that the standard field trips would be too elementary for her students. As in the Shelburne cases described above, the teacher shared the curriculum, and the farm educators created a trip to meet her needs. All interviewed farm-based educators were open to working with teachers to create curriculum-appropriate field trips.

Subtheme: Pre/post activities. Some farm educators provided teachers with pre-visit and post-visit activities to use in the classroom. The Shelburne educator was proud of:

Providing them with as many resources as possible: we send them tons of material before they come. I send them home with an envelope chock full of activities all connected to whatever [the field trip] was.... It's nice to be able to give them some stuff so that when they leave they can say, "Oh, we can continue this in our place." (S)

The Shelburne educator tried to send teachers home with lots of materials, so that the field trip activities could be continued back in the classroom, creating clear connections for students.

All the farm educators suggested that they thought these types of activities were a good idea, and some wanted to do more to help teachers with classroom activities related to the trip. "I'd love to have a lot more that we send to them in terms of maybe some preplanning that they could do, post-planning, different cross-curricular activities for their class" (E). This educator saw room for expansion of the farm's pre-visit and post-visit materials. At another educational farm, teachers needed encouragement to use these materials:

Our *Click* magazine project is a set of three pre-visit materials and potential for post-visit materials. And so I just had a teacher e-mail me asking for those yesterday, or the day before, which is really exciting. I'd like to do more of that and have every group get some sort of materials that they can prepare with...long term, we'll try and see how can we just get more of this into the hands of the teachers because once they use it.... I think they'll keep using it and that'll just become more part of the culture itself. (G)

The Gorman educator felt that he needed to introduce pre- and post-visit materials gradually, as teachers were not yet used to them. The teacher's request for some of these materials was exciting to him because it indicated that these materials were becoming part of the culture of field trips.

All teachers indicated that they planned at least one classroom activity connected to the field trip. However, the form of the activities and the extensiveness of the connection varied widely. For some teachers, the related activity took the form of a brief classroom discussion. "When they get back today they will be doing a recount of their trips. We'll do an oral recount together, and then they'll do an individual one, and they'll get to share with each other what they got out of it" (E2). A class discussion of what they had done on the field trip and what they learned, and an individual version of the discussion, constituted the follow-up activities the teacher planned in this class. However, when asked if they had done anything in school in the week after the trip that reminded them of their trip to the farm, students in this class indicated that they had written a paragraph about the trip, that the trees near school had made them talk about the trip, and that a celery experiment done in class had reminded them of the trip.

Other teachers utilized the field trip as a central element in an extended series of activities.

We always...begin our unit with this trip to the pumpkin patch. And then we come back and we use those pumpkins to do different activities throughout the month, in terms of our life cycle...we cut some open and explored what's on the inside...we did a lot of things with measuring and weighing, and talking about the life cycle of the pumpkin, and cutting them open and seeing what was actually inside. (S1)

This teacher used the field trip as a kick-off activity for an entire month centered on pumpkins, including learning about life cycles and mathematics. Students in this class mentioned writing about the trip, cutting open and measuring the pumpkins, and playing farm at choice time as things that they had done in school related to the farm trip.

Three of the teachers interviewed used activities provided by the farm. “Shelburne Farms has put together a book called *Project Seasons*. And sometimes there’s some really great connecting activities that we can do prior and post from that book, depending on what we’re studying” (S1). Similarly, a teacher visiting Gorman said,

The farm last year was in this magazine called Click. They had us read a magazine and it was nice because it has a lot of information about the farm. So actually, I asked for those again this year. They didn’t offer them, but I said, “Can we have those again?” So we’re reading that [before we visit the farm].
(G1)

Presumably this was the teacher whose request so excited the Gorman educator. This teacher was pleased to take advantage of pre-visit activities provided by the farm.

Other teachers created their own follow-up or before-trip activities.

We can do lots of stuff from here. We can write a letter, we can talk about what we saw for plants. We can go and do lots of different follow-up stuff when we come back... I think I’m going to have them write, we’re practicing right now how to write recounts and put them in order. So I think when we go back it would be great if we could brainstorm from beginning, middle, end, how our day went. And I think we’ll do some letter writing too. I was thinking about that.
We can write to the farm and say what we liked about it. (E1)

This teacher was brainstorming during our interview about ways she might be able to bring the field trip into the classroom, including letter-writing, recounts, and connections to plants.

After a Kindergarten trip to Shelburne Farms, “We came back and wrote a book about our trip to the farm” (S1). The class worked together to create a story about their trip, complete with pictures, clarifying their learning and connecting classroom activities with the field trip.

A pre-school teacher who wanted to help students explore their interests described her post-trip plans: “[After the field trip] we’re asking them what more they want to know about, and sort of stimulating that.... and then what we will ask is how do they want to share that information with their classmates or their parents” (G3). The students had an opportunity after the field trip to learn more about the interests they expressed in horses, chickens, sheep, goats, cows, and pumpkins.

Rather than thinking about specific pre-visit or post-visit activities, some teachers saw the field trip as being generally connected to classroom learning. “I think a lot of the ideas that are in that field trip continue throughout [the school year], but we’ve moved on to other topics, like compost and soils, but it’s all related, so, we just go back to it” (S2). “[A variety of activities in the classroom] all kind of lead up to the farm trip” (G1). These two teachers saw the farm field trip as related to many classroom activities. It was unclear if they would help students make explicit connections between classroom activities and the field trip, or if they expected students to make these connections on their own.

Curricular connections were central to farm field trips, both for classroom teachers and for farm educators. Farm educators and classroom teachers sometimes worked together to create field trips that connected effectively to the classroom. Pre- and post-visit activities in the classroom reflected varying levels of integration of the field trip with the curriculum. It is clear

that while all educators consider curricular connections important, they employ a range of ways to connect the field trip to the classroom.

Theme: Farm Experience. The experience of being on the farm was another common reason for the field trip. Only one educator explicitly expressed an awareness of the principles of experiential learning of the necessity of reflection on the experience. However, other educators indicated that reflection did or would occur.

Subtheme: Exposure to farm. Many teachers indicated that a primary reason for the field trip was to have students experience a farm. “[The farm visit is] just an experience that they won’t ever forget, and just being able to see what it’s really like, I place a lot of value on that” (S2). A memorable experience was important to this teacher, particularly one that she could not possibly provide in the classroom. “It really takes what we teach and makes it more real.... It makes it more real than anything out of a book or out of what the teacher says” (E3). This teacher felt that the concrete experience on the farm would support classroom learning that was more abstract.

Some educators focused on the exposure of youth to the farm context. Most of the teachers interviewed for this study taught in urban or suburban schools, and their students did not have farm backgrounds. “It’s really, a lot of times, their first exposure to the farm. And sometimes they just have a great time looking at the animals, and seeing what that’s all about, and going into the gardens” (S1). One teacher described what she felt her students gained from the field trip: “For some, it’s just – it’s just a tactile experience that they come away with” (G1). This teacher valued the kinesthetic understanding that her first graders developed through the trip; she did not necessarily expect cognitive learning for all the students.

Subtheme: Hands-on Learning. Hands-on learning emerged as a component of the farm experience. Several teachers commented on the value of hands-on learning. Asked about her philosophy of teaching, one teacher said: “Hands-on learning and actually experiencing is the best” (E1). A preschool teacher observed that her students “don’t do as well with watching as they do with hands-on things” (G3). Another teacher stated that what she valued in a field trip was, “A lot of hands-on. Kids learn by doing” (E2). However, none of these teachers mentioned the “mind-on” concept described by Hein (1998).

Subtheme: Experiential learning. Experiential learning involves a cycle of experience and reflection (Kolb, 1984; Dewey, 1938/1997). The Gorman educator was the only person interviewed who noted explicit awareness of this aspect of experiential learning theory. He described the mission of the farm: “Our goal is to give kids exposure to growing things.” However, he followed up by observing that exposure is just the beginning, and that he believes it is important to ensure that students derive meaning from their experience.

I think the experience isn’t enough really. You want there to be something else happening from that experience...which is that they're gaining respect.... Farm-based education really is a subset of experiential education and...just having that experience isn't enough.... You want to instill something from that experience.

(G)

He felt that it was important for students to step beyond the experience to learn from it. As respect for living things was important to this educator, he hoped students’ reflection would lead to the development of this respect.

Exposure to the farm context, and learning from the experience of being on the farm, were important factors for all the educators interviewed. Most educators interviewed did not

explicitly consider the reflection process suggested by experiential learning theory; rather they assumed that learning would occur as a result of the farm experience. However, some of the post-visit activities planned by classroom teachers, such as recounts and further exploration of farm interests might well provide an opportunity for the type of reflection necessary for effective experiential learning.

Theme: Agricultural Literacy. Agricultural literacy is an understanding of the food and fiber system, including food and fiber production, how food or fiber gets to the table or sweater, and the importance of agriculture (Frick, Kahler, & Miller, 1991). Not surprisingly in the context of farm education, agricultural literacy was a common theme, both from farm educators and from classroom teachers. Many teachers saw the field trip as an opportunity to teach their students about where food is produced and the importance of farms. Farm educators, similarly, saw their role as including connecting the farm's visitors to with agriculture and with the source of their food.

One farm educator noted the challenges of addressing agricultural literacy and the improvements she would like to see in agriculture. "I don't really want to slant the program too much and make it too negative, but I'd love to talk about agricultural systems with the idea of positive change" (E).

A farm educator described Gorman's mission:

It's to tie people back through agriculture in the broadest sense from... gardening at whatever scale.... We're kind of unique in that we are farming, and we have field crops and livestock, and people can connect in all those ways. (G)

He added:

I think it's good to have kids see animals raised in an environment that is an antithesis to – to a factory farm, and they can start to – and that goes to the respect element, too – is they can try to answer for themselves what practices do we think are okay or not.... It begins at, I think, just questioning. (G)

To provoke such questioning, the farm educator at Everdale addressed food systems issues through an activity:

We would do apples to applesauce and show the kids the different steps that the apple took to get to the applesauce, and then tell them how much the applesauce cost. They'll actually buy [applesauce in the store] for sixty-nine cents, and then let them make their own decision. Well, that's not a lot of money.... So they start to have those questions themselves and then you can have a discussion about localized food systems. (E)

Both the Shelburne and Gorman educators observed that adults are often no more agriculturally literate than children. They saw an opportunity to teach field trip chaperones about agriculture as well.

You can help introduce kids to things but ultimately their parents or their caretakers are the ones that are making their food decisions for them. So it's great to have chaperones coming on the field trips and helping to do the same program...the same thing happens to [the adults] when they're making that pizza or something. (S)

Many adults also have had limited exposure to agriculture, and can experience similar learning on a farm field trip. As this educator observed, adult learning may have more immediate impact on food choices, as they have more control over such decisions.

In describing what she hoped her students would take away from the field trip with them, one teacher said: “The importance of plants. The importance of rural community, and how they depend on each other, urban and rural. Yes, that’s certainly what I hope they’re taking, a bigger picture” (E1). This teacher saw the value of the trip as helping her students understand where agriculture fit into their lives in a big-picture sense.

One teacher explained why she decided to take her students on a trip to Shelburne Farms. “Dairy is the biggest part of the agricultural economy here in Vermont, so we felt like we really wanted to touch on dairy in Vermont, so that’s why we specifically chose that field trip” (S2). Again, the role of agriculture, particularly dairy, was an important goal for the field trip for this teacher.

Subtheme: Where food comes from. Many teachers, and all the farm educators, felt it was important for students to understand the source of their food. “I think it’s a really important thing that people should be aware of and understand where their food comes from and have an appreciation for the people that make it happen” (S2).

It’s really about being able to see what a real working dairy looks like. And, I remember the first time that I went [to Shelburne Farms] and learned how dairies really work, I didn’t even really fully understand the cow has to get pregnant to be able to give milk. And, those really basic things that we take for granted with our food, and just to realize what the dairy industry is about and how it works and what goes into making their food, just to give them a little more appreciation for it.” (S2).

Some educators felt it was important to bring to a farm “kids who had no idea that their food came from a garden” (S). For some students, a particularly memorable part of the field trip

was the opportunity to taste vegetables from the garden. A visit to a farm can be a real eye-opener for a child (or adult) who previously thought of food as coming from the refrigerator or pantry.

Farm educators went about addressing where food comes from in different ways. At Everdale, it is introduced gently: “We try and ask a little bit about their food in a fun, non-leading, type of way. ‘Who ate something from a farm for breakfast?’” (E). This resonated with some at least one student, who said that eating lunch in the following days reminded her of the field trip. Shelburne does an entire field trip program exploring the origins of one favorite food:

Where does pizza come from? And the kids will say, “from the freezer,” “from a box,” or, “from the grocery store,” “from the pizza place,” and by the end of the day you’ve made an entire pizza from scratch. We grind the wheat into flour. We make sauce using tomatoes and herbs from the garden. We make our own cheese. We milk the cow. We’re harvesting toppings. And so by the end of the day when you say, “Okay, now, really, where does pizza come from?” They’re like, “It comes from the earth.” It’s something that grows; food grows. And that, for some children, that’s a huge revelation. (S)

On this field trip, students shift from thinking pizza originates in the freezer to seeing how all of its components come from a farm and, ultimately, from the earth.

Teachers found a farm trip to be a valuable way to connect youth to where their food comes from: “This, I think, really brings it full circle, where the kids can actually see the importance of farming, and where their food comes from. It just doesn’t magically appear at [the grocery store]” (E1). At the end of a field trip at Shelburne, the educator often hears comments like, “We learned today that eggs actually come from a chicken.” As mundane as this might

sound, discovering that eggs come from chickens can represent a paradigm shift for a child.

After a field trip to Shelburne, some fourth graders participating in this study said that they had learned, “that only when female cows are pregnant, they produce milk,” and “a girl cow milks [sic] and a boy cow gets turned into hamburger.”

A kindergarten teacher stated said that she needed to justify a field trip in the language of learning standards. “Where food comes from” was her official goal for the field trip, as it aligned with state learning standards. She used this learning goal to justify the field trip to her school’s administration.

In at least one situation, the presence of the thought about where food comes from was less welcome. “The cow was a disappointment. This is a farm where they, it is a working farm, so they sell the meat.” (G3). It seemed that this teacher would have preferred not to think about the fact that the cow would be going to the butcher. This is perhaps a case where learning about “where food comes from” was as salient for the adult in the group as for the children. This was the only teacher who mentioned the realities of food production in a negative light.

Subtheme: Importance of farms. Several teachers indicated that they took their students to a farm to help them understand that farms are important. “The kids can actually see the importance of farming.... and the importance of supporting farmers” (E1). “Knowing how much of a part of Vermont the dairy industry is, and what it means to Vermont, I think is a big part of it too” (S2). A kindergarten teacher wanted her students to understand “just how important [agriculture] is to our community” (S1). The educator at Everdale hoped that after a field trip, students “think of farms as places of importance.” After their field trips to Everdale, a number of third grade students explained that farms were important because they provide food, or, as one student put it, “If we didn’t have farms, it would be very hard to get eggs.”

Returning to the theme of agricultural literacy, this factor was important for both farm educators and classroom teachers. A farm field trip was seen as a good way to introduce youth to where food comes from and the importance of farms. A visit to a farm was also seen as an opportunity to prompt students to think about agriculture. A field trip to a farm may be an effective way to develop agricultural literacy for the vast majority of North Americans with little or no farm background.

Theme: Local food. Local food was a common theme, and included the importance of purchasing food from local sources and supporting local farmers. Unsurprisingly, farm educators considered local food important. But classroom teachers also expressed interest in local foods. They thought about local foods both in their personal lives and as something they wanted to teach their students.

One farm has come to see local sustainable food systems as its core: “It still wasn’t necessarily evolved into being about local sustainable food systems, I would say, until about 2004” (E). Another farm educator also considers local food to be a central part of the farm’s role: “We are also producing food so that people can... connect [with agriculture] through simply buying, being a participant in the local food system...” (G). These educators saw their farms as providing an opportunity to connect people with local food systems. The Gorman educator further appreciated that his role as a farm educator connected him with other people who were interested in local food.

Teachers focused on local food both in their personal lives and in their teaching:

I do try and buy local...I think it’s so important to support local farmers, and produce. And I think of the [Greater Toronto Area], and how it’s growing and

growing and growing, and almost at a scary pace, and I think it's just so important to teach kids, to model it, the importance of supporting local. (E1)

Another teacher mentioned that she felt it was important “to make sure people buy locally” (E2). One teacher included local food throughout her curriculum: “We started out [the school year] with our local food system, and we’ll eventually come back to that too” (S2). For this teacher, the local food system provided continuity, both beginning and ending the school year.

Some teachers had a more intimate connection with local foods. Prior to her teaching career, S2 worked on a farm where “we grew, on our farm, food just for the school district. So the kids would work on the farm and then the food would go up to the schools” (S2). This teacher had actually been involved in producing food for the local community, while engaging youth in both producing and eating the food.

Local food was important, not only for farm educators but also for a number of the classroom teachers interviewed. These educators thought about local food personally and in terms of connecting their students to local food. An interest in local food may have led farm educators to their current jobs and may have encouraged classroom teachers to take their students to visit farms.

Theme: Interconnectivity. Interconnectivity was a broad theme that came up across interviews with farm educators and classroom teachers. “We’re just helping them to make connections,” said the Shelburne Farms educator. This theme encompassed several types of interconnectivity, including the interdependence of community, connections to the land, understanding life cycles, and connections and interdependence among people, animals, and plants.

Subtheme: Community. Community was addressed in several contexts, including the relationship between the farm and its community, the farm as a community, and learning about the concept of community and the ways communities function.

Farm educators referred to the role of the farm in its local community. At Everdale Farm, “[we’re] taking a step at actually defining who our community is.” As part of this process, the farm was defining its community to be more localized, rather than considering the nearby metropolitan area or the entire province as well. The Everdale educator also noted the importance of maintaining a positive relationship between the farm and its community; when addressing how to teach youth about agriculture, she said, “We are a rural community. I don’t really want to send a kid home thinking that their parents are bad people [based on something they learned on the field trip].” As the organic approach at Everdale is different from that taken by most other farms in the area, and since visiting students may live on these farms, Everdale’s educators are careful to respect other approaches to farming while teaching the reasons for their own organic practices.

Shelburne Farms seeks to help the community feel connected to the farm: “There are a couple of schools that are nearby, like Shelburne Community School, for example, which is right up the road. We want those students to grow up feeling like this is their place, this is their backyard.” It is important to Shelburne to be a part of its community. Although the farm charges a fee for access to its grounds, residents of the town of Shelburne may visit free of charge.

A committed volunteer community is essential to Gorman’s educational programming: “[The volunteers] are very dedicated... we have much more volunteer support than a lot of other

organizations” (G). As Gorman has only one full-time and one part-time paid educator, volunteers lead most of the farm’s field trips.

On a personal level, the educator at Gorman Heritage Farm felt that community was important: “I’ve always been interested in a local economy, too, and local community and what strength can come from that. This job is a great outlet for that, working with people that are also interested in not just local food but local economy in general and local community.” He saw his position as a farm educator as a way for him to participate in the community and connect with other people interested in local community issues.

Some school groups were studying community; E1 connected to the farm field trip to a unit on “urban/rural communities.” She hoped the field trip would help her students to understand “the importance of rural community, and how they depend on each other, urban and rural.” Another teacher, S2, indicated that she does “lots of stuff about our local community” with her students; “We go at least once a month out somewhere in the community.” S1 considers her spring field trip to Shelburne Farms to be “a cumulative field trip that ties together our whole year worth of study on community.” Referring to the value of field trips, she added, “I think every time we go out in the community, it’s a great experience for the kids.” A first grade class was studying “how different communities survive and what’s in different kinds of communities including a farming community, and how everybody relies on each other” (G1). Their teacher was hoping the students would come away from the field trip with an understanding of how a farm “functions as a community.”

The local community also supported student learning in other ways. G3 looked to her community for follow-up activities after the field trip, connecting her students with nearby families who kept chickens and goats. S1 takes multiple field trips throughout the year to visit

“community helpers,” such as the bank and fire station. These teachers connected their students to the community through multiple local field trips.

Subtheme: Connection to the land. Connection to the land was a theme that was primarily mentioned by farm educators, who felt that helping youth connect to the land was essential. Only one teacher mentioned the land, but in the frame of her personal connection; she did not indicate an explicit interest in helping her students to connect to the land. Connecting people to the land was a central aim for at least two of the farms. At Gorman, “Our overarching goal is to connect people to the land.” At Shelburne, “Cultivating a conservation ethic is one of the things that comes from our mission. And what that means is really just helping young people and grown people become connected to the land in one way or another.”

In addition, at Shelburne Farms, “pretty much everything that we teach [is] trying to help kids have those ah-ha moments where they’re just making connections to the land be it in the forest or be it with the food and the agricultural stuff.” In discussing her field trip goals for students, the Shelburne educator indicated, “I hope that they’re having some kind of a new memorable experience that’s going to help again to tie them to the land so that they feel a sense of responsibility someday.” She expected that a positive experience on the farm would help students feel connected to the land, and encourage stewardship later in life.

Only one classroom teacher mentioned the importance of a connection to the land, with regard to a field trip to Shelburne Farms: “It’s just, the most beautiful land around here, it’s just an extraordinary experience, just being on the property in and of itself.” Even here, though, the teacher spoke generally, and stopped short of stating that she encouraged her students to make a connection between themselves and the land that she found so beautiful. She may have assumed

the students would make the same connections she had, without needing to make these connections explicit.

A broad category that encompassed community, connection to the land, and other connections, interconnectivity was a frequent theme for both farm educators and classroom teachers. A field trip to a farm can help youth understand community connections among people, their own connection to the land, and connections among concepts that they have learned.

Theme: Sustainability. Sustainability was a common theme mentioned by both farm educators and classroom teachers. Sustainability is the capacity to continue or endure. It refers to an approach to using resources in such a way that they are not used up or damaged, and such that they can continue to be utilized in the future. Environmental sustainability was a central element for two of the farms: Shelburne and Everdale. Sustainability was also important for teachers visiting these two farms. In addition, the educator at Shelburne mentioned the sustainability of the educational program itself.

The centrality of sustainability stemmed from the farms' missions. At Everdale, "Our primary focus is on agriculture and sustainable farming." For Shelburne, "Our mission is really to teach sustainability." Sustainable agriculture and sustainable land use form the foundation of educational programming at these two farms.

Teachers also noted sustainability in relation to their teaching or field trip. One teacher considers "sustainability education" to be one of her primary focuses in teaching, and took a field trip to another farm where "we were focusing a little bit more on vegetable farming and some of the current sustainable farming methods there" (S2). One participating teacher taught at "the Sustainable School Project," a magnet school for sustainability. When planning field trips, she

looked for a “connection to our unit of study, or our sustainability theme that is sort of weaved throughout the school” (S1). Another teacher was interested in teaching her students about “more sustainable building choices” because “sustainable building choices and organic farming are part of the Ontario Science Curriculum” (E3). Everdale is an organic farm with several straw-bale buildings and operates in part on solar and wind power. After this field trip, the students made statements such as, “I learned how to farm organically and why it’s important for your health,” and, “[sustainable housing] is better for the environment and saves and conserves energy.” Thus, the trip to Everdale supported the sustainable building and organic farming components of this environmental science class.

In addition, the sustainability of the educational programs themselves came up: “Teaching teachers is a really important part of making the mission [of Shelburne Farms] sustainable and helping to perpetuate this kind of education” (S). Beyond environmental sustainability, the educator at Shelburne was concerned about the continuity of the types of educational opportunities that Shelburne provides.

Sustainability was a common theme, particularly for farm educators and classroom teachers at Shelburne Farms and Everdale Environmental Education Centre. Sustainability is part of the mission of these two farms, so it is unsurprising that the farm-based educators there considered it important. However, value of sustainability also extended to teachers visiting these farms. A visit to a farm, particularly one farmed using sustainable practices, as both these farms are, may be an effective way to introduce the concept of sustainability to students.

Theme: Logistical factors. Logistical factors were very important to the taking of field trips to educational farms. Logistical factors made field trips easier or more difficult for teachers, and were broken into three elements. *Facilitators* were factors that made field trips

easier for teachers, such as parental support and proximity of field trip sites. *Constraints* were factors that made field trips more difficult for teachers, such as transportation and money.

Overcoming constraints were efforts by teachers and farm educators to surmount these barriers in order to make field trips feasible. Teachers repeatedly raised logistical factors, and farm-based educators seemed acutely aware of constraints and facilitators and worked to ease the process when possible.

Subtheme: Facilitators. Facilitators were factors that eased the field trip process for teachers, and included high quality programs, financial support from the school's parent association, and proximity to field trip sites.

Field trip programs that reduced the planning burden on teachers were one type of facilitator:

We've been having a lot of success lately going to places where it's easy for us as teachers because there's so much great stuff that's planned and organized, from the facility, so it makes it easy for us, and it's exciting for the kids. (E1)

Several teachers mentioned parental support. "We have a really strong parent council which helps us a lot with fundraising. We get something called a *bus subsidy* every year, which actually really pays for one of our field trips" (E1). "We get a bus paid for by the Parents Club"

(G2). At one school, parents eliminated the need for buses altogether:

Parent volunteers [drive] us; I have a ton of supportive parents, so if only we have enough drivers, we can go pretty much anywhere we want.... Parents drive us, every time. If we had to pay for a bus, then there would be a lot of constraints.

(S2)

Assistance from the field trip venue was another facilitator. One school has a close relationship with Shelburne Farms, which funds their transportation and field trip to the farm: “Because of our connection [to Shelburne Farms, our field trip is] totally supported and funded, so we’re very fortunate” (S1). Referring to another field trip she is considering, a teacher mentioned that one of its attractions was that “the facility provides busing free-of-charge to groups” (E3).

Subtheme: Constraints. Constraints were barriers to taking field trips to farms. They were factors that made it more difficult for teachers to take a field trip. The primary constraints experienced were transportation and money.

Money was a primary constraint. Most teachers made comments such as, “Money is always, you have to always be sensitive to that issue” (E1) and, “The financial demands are the greatest limitation.... The money is a lot” (E3). One teacher lamented, “I wish we had more funds for another field trip” (G1). This school only permitted each class only one field trip per year. For all teachers interviewed, financial constraints constituted the main barrier to field trips.

Financial concerns applied to students: “[We have] to try to keep the level of the cost down for the kids who can’t afford it” (E2). They were also related to the school budget: “Because we don’t have a very big field trip budget, we get a very limited amount for busing, and so once that’s done, we don’t go anywhere” (S1). Both family finances and school finances contributed to the financial constraints on field trips.

Related to money was the cost of transportation. “The bus is pretty expensive, from what I remember.” (G2). The educator at Shelburne Farms observed, “The cost of buses is quite expensive” (S). Bus cost forms a major portion of the expense of taking a field trip. Both classroom teachers and farm educators mentioned this factor.

Bus-related constraints went beyond cost, however: “I have a child in a wheelchair that we can’t transport easily. Parents would have to transport, so that was a difficulty, just because we don’t have a handicapped accessible bus” (G3). In fact, when this class took their field trip to Gorman, the two students in wheelchairs stayed at school.

In addition to financial and bus constraints, many teachers find that school policy makes it difficult for them to take field trips. One teacher observed: “[A field trip] is a hassle. The paperwork’s intimidating.... It’s a lot of work to plan field trips” (E3). Another commented: “A lot of times, schools aren’t willing to take kids away from – even though it’s a learning experience, to take kids away from the school property to learn” (G1). School policy discouraged field trips, either through onerous paperwork and requirements or by actively restricting the taking of field trips.

At least one teacher felt that the limitations imposed by the school were reasonable: “[We can go on field trips] as long as it doesn’t interfere with the specials too much, like PE and music and as long as we let people know in advance. Let the cafeteria know, and all that stuff” (S2). Perhaps this school had fewer regulations around field trips, or perhaps this teacher simply saw them as logical and so was not frustrated by the policies.

Subtheme: Overcoming constraints. Teachers attempted to overcome these constraints, for example, by selecting field trips within walking distance or that were free or low-cost. For one urban teacher, “Most [field trips] we do are free, and within walking distance.... Being in the city, a lot of [potential field trip locations] are close enough for us to walk to” (S1), reducing the need for a bus. At another school, where students paid for field trips, teachers tried to distribute field trip costs evenly across the year, in consideration of families’ finances:

If we go on an expensive trip, say around the fifteen-dollar mark, we try to keep one or two cheaper than that, to balance it out. And we also try to evenly space them to be fair to parents. So we're doing one now, but we won't do one again until probably after the holidays, and then one towards the end of the year. (E1)

To reduce bus costs, one teacher took her class to two different locations on the same day, in order to only need one bus: "essentially that's two trips because we're doing one in the morning and one in the afternoon" (E3). This teacher also found the process of arranging a bus to be a substantial effort, so she combined trips to save both money and work. This was the only teacher who mentioned this strategy to overcoming transportation and financial constraints.

Farm educators indicated an awareness of the barriers experienced by teachers and helped to mitigate them when possible. Although all participating farms charged for field trips, it was important that the cost not be prohibitive. "I would absolutely work something out for a school that just suddenly couldn't come [because of cost]" (G). "The farm offers scholarships and supplements if a school can't afford to bring their students. The farm will just cover the costs, which is a really nice thing" (S). Farm educators were willing to be flexible to reduce bus expenses as well: "If it makes more sense instead of splitting it [the group] in half and having 30 kids come one day and 30 come the next day we might have them all [on the same day]" (S). Flexibility on the part of the farm-based educators was designed to reduce barriers for teachers and ease the field trip process.

Logistical factors both helped and hindered field trips to farms. Facilitators of field trips included parental support, proximity of field trip venues, and good field trip programming. Constraints included money, buses, and school policy. Classroom teachers and farm educators worked around constraints to ensure trips could still occur.

Goals

All educators interviewed were asked about their goals for field trips. The goals expressed by each classroom teacher and farm educator are outlined in Table 4. The most common goals that arose will be discussed in greater detail below.

Farm-based educator goals. Common themes among the goals expressed by farm-based educators included (a) a focus on providing a good and valuable experience for the students; (b) magical, or “ah-ha” moments; and (c) awareness of the expectations and needs of the visiting teachers.

Student experience. At all three educational farms, educators discussed the importance of the student experience. A principal goal for the educators was that the students have a good experience at the farm, and that it be something valuable that they remembered. At Everdale, “A primary focus [is] for the kids to have the best of what we have here” (E). At Gorman, “[In] our school program [it] is so important to give all...kids a great introductory experience...the overwhelming goal is we want kids to have a great experience on the farm” (G). At Shelburne, “I just want to make sure that every kid that comes has the best experience possible” (S). The Shelburne educator added:

I want it to be a lasting experience... I hope that every kid goes home with at least one or two things that they haven’t thought of before. Or you know a new word they didn’t know or today was my first time milking a cow, I’ve never touched a cow before or a pig or whatever. I hope that they’re having some kind of a new memorable experience that’s going to help again to tie them to the land so that they feel a sense of responsibility someday, and I hope they have fun. (S)

Table 4

A comparison of field trip goals of farm educators and classroom teachers by farm

Farm	Farm Educator	Classroom Teachers
Everdale	Importance of farms Best of the farm Magical moment Something new Visit to the big field and livestock Organic farming principles Farm as an ecosystem Investigation, stimulate curiosity What the teacher wants	Importance of farms Where food comes from Urban/rural dependence Humans, plants, animals connected Connections between in-class and outside Reinforce classroom learning Hands-on experience More sustainable lifestyle
Gorman	Living things – life needs & life cycle Experience Connect people to the land Engage people in the food system Exposure to farm animals Introduction to the farm Exposure to growing things Respect	All living things have basic needs Experience Really good experience they won't get anywhere else We're all connected Interact with animals Deeper understanding of animals Category of farm animals Economic issues of goods & services How community works together Jumping off point for other activities Where food comes from Great time Specific to child and group
Shelburne	Where food comes from New experience, new thought Best experience possible for all Make connections Ah-ha moments Understand place History of Vermont, landscape change over time Great day Teachers happy, goals met, easy field trip Lasting memory	Appreciation of food production An experience students don't otherwise get, can't duplicate in the classroom Experience of being on the land Exposure Connection to unit of study or sustainability theme Exploration Working dairy, functional business Importance of dairy industry

All the farm educators mentioned the experience as a central goal for students visiting the farm on field trips.

Magical, “ah-ha” moments. At two of the farms, the educators mentioned moments of discovery for students visiting the farm. At Everdale, “One of our objectives is to create and help to facilitate and create a moment for the child that hasn’t ever happened before. So you know those magical moments” (E). At Shelburne, “We really are just trying to help kids have those “ah-ha” moments where they’re just making connections to the land be it in the forest or be it with the food and the agricultural stuff” (S). These moments of revelation were an important goal of field trips for farm educators.

Teacher expectations. All three farm-based educators interviewed stated that one of their goals in hosting field trips was to fulfill the expectation of the visiting teachers. At Everdale, “It’s really important to meet those teacher’s expectations... understanding what his or her expectations are and trying to meet them as best we can” (E). At Gorman, the educator sought to determine teacher expectations: “I started having a space, pretty prominently, a third question on a registration [form for teachers] was, ‘What are your goals for the program?’” (G). At Shelburne, the educator described a goal for field trips:

I want the teachers to be happy with the experience...feeling like their goals were met, feeling like they came and this was a successful experience as far as meeting their standards, or it may be they don’t care about their standards because some just want to come and have a fun day and get their kids outside. (S)

The goal of fulfilling teacher expectations was important at all three educational farms.

Teacher goals. Common themes among the goals expressed by classroom teachers included (a) reinforcing classroom learning; (b) providing an experience that students would not otherwise be able to get; and (c) teaching students where food comes from.

Reinforce learning. An important goal expressed by many of the classroom teachers was to reinforce classroom learning and connect to the curriculum. For many, it was essential to have this connection.

For example, one teacher said, “[My goals for the trip include a] connection to our unit of study” (S1). When asked to clarify which of her field trip goals was most important, she said, “It’s always fun to go on a field trip, and go to the farm, but we do have to have some kind of a connection, so probably trying to tie it in as closely to what we’re doing in school [is the most important factor]” (S1).

Another teacher explained her goals for the field trip this way:

Hopefully they will take what they’re learning [on the field trip and] they’ll be able to relate it better to what they’re learning in class, because it’s more hands-on...hopefully they’ll be able to make the connections between what we teach in class, and what’s outside. (E2)

Similarly, another teacher, when asked what her goals for the field trip were, said, “I think it will reinforce many of the concepts I teach in class” (E3). Connections to classroom learning were clearly important for teachers taking field trips.

Where food comes from. Many of the teachers interviewed mentioned that showing students where and how food is produced was an important goal of the trip to the farm. A third grade teacher said that she wanted to take students to a farm so that “The kids can actually see the importance of farming, and where their food comes from. It just doesn’t magically appear at

[the grocery store]” (E1). For a teacher in Vermont, where dairy is a substantial portion of the agricultural economy, “[My goal is for students] to realize what the dairy industry is about and how it works and what goes into making their food” (S2). A Cincinnati teacher connected “Where food comes from” to the Kindergarten learning standards to justify the field trip to the farm to her school administration (G2). Farms were seen by the teachers to be an effective venue for teaching students where their food comes from.

Unique experience. It was important to teachers to provide a unique experience for their students. It was also important that a field trip be an experience that the teacher could not provide in the classroom. One teacher (S2) described a negative experience with a field trip to the local science center, because she felt she could have provided the same experience for the students in school. A teacher who takes several field trips each year to Shelburne Farms explained her goals for her winter trip: “Typically in the winter time it’s getting the kids out in the woods and seeing what winter is like, because so many of them don’t have that experience...just really fun things that the kids don’t typically get a chance to experience” (S1).

G2’s main goal is for the “kids to get a good experience outside of school.” She expects the kids “to have a really good experience that they can talk about and write about.... Something different.” She hedged when asked to prioritize her goals for the field trip: “Technically speaking, since I’m a teacher, it’s all about the learning objectives. But, not technically speaking as a teacher, it’s a great time for the kids, and they learn a whole lot” (G2).

One teacher felt that the experience was particularly important: “For Kindergarten it’s really, a lot of times, their first exposure to the farm.... In Kindergarten it’s more exploration and discovery [than in the older grades]...in order to give them that hands-on experience and exposure” (S1). Giving the students this first-time experience was an important part of visiting

the farm for this teacher. And many of the teachers sought through the field trip to provide a rich experience that their students would not otherwise have, and that could be utilized for inspiration in the classroom.

Student Survey

Approximately a week after the field trip, students were asked to recall their experience. Students responded to several open-ended questions about their memories of the trip, their learning on the trip, and the best part of the trip (see Appendix C for details).

After a fourth grade field trip to Shelburne that focused on dairy, students responses to both the best part and memory questions focused on the cows, including calves, milking, and manure. The experience of interacting with the cows and calves seemed to have really resonated with these students. The trip was exciting and fun, and one student said that the best part included “learning a ton.” When asked what they had learned, most students provided specific facts that they had learned. For example, many students noted learning about the volume of food consumed and manure produced by cows. Other students mentioned learning why some cows had tags in their ears or rings in their noses.

After a Kindergarten trip to Shelburne that focused on pumpkins, student responses (as elicited by the teacher) were that the best parts of the trip were drinking cider, eating doughnuts, and “picking out our own pumpkins.” In terms of what they had learned, this group focused on pumpkins and animals, including one response of, “I can catch crickets.” Most of the answers were facts that students learned, but this student focused on something he learned about himself. Their answers to what they remembered about the trip were more broad-ranging, referring to things like selecting pumpkins, eating vegetables from the garden, the group leaders, holding chickens, and, “We saw an animal that looked like a mouse.”

This same group took another trip to Shelburne in January; this time the trip focused on animal tracks. In this case, most student responses about their learning centered on animal tracks and the ways animals walk; that is, the content students were supposed to learn. A smaller number of students responded with things they learned about themselves or the experience. For example, “That I like sheep.”

After a first-grade trip to Gorman, most students reported that the best part of the experience revolved around sunflowers and animals. Their memories focused on sunflowers and bees. For one student, however, the best part was tasting the lettuce. In answer to the question about what they had learned, these students focused on specific facts that they had learned about animals. For example, “I learned that pigs make bacon” and “I learned that cows make milk” and “how to hold an egg.” However, some students spoke more generally: “how animals live” and “that cows are bigger than they look.” The sunflowers clearly made an impression on these students, as did the opportunity to observe and interact with the animals on the farm.

A group of Kindergarteners who visited Gorman mostly reported learning facts about cows; for example, “cows eat alfalfa hay” and “cow make hamburgers.” Other students mentioned learning specific information about other animals on the farm. However, a few students focused on farm machines (“combines collect corn”) or that “you can compost orange peels.” This group in particular focused on specific information learned, and none of the students mentioned general or affective learning.

After a third grade trip to Everdale, student memories were varied and included reference to most of the activities the students had done on the trip, including making bread, eating spinach and pulling carrots and radishes in the field, chasing chickens, and a soil-making activity. The

learning this group reported focused on making soil, that the food was organic, and how to make bread.

For another third grade group that went to Everdale, memories focused on a few specific activities: making bread, tasting vegetables from the garden, watching the animals, and exploring the maze at the farm. They reported that their learning was mostly related to the soil and bread-making activities. However, a few students reported learning connected with tasting vegetables in the field, including one student who learned, “spinach is not gross.”

After a grade eleven trip to Everdale, student memories were varied and referred to such experiences as:

- Petting the animals and learning about their behavior and how to take care of them
- The animals, the plants
- The greenery, plants, fields, animals
- Eating the organic food from the field; learning where our water comes from
- The harvesting and figuring out how large an acre actually is

Most of these students reported learning specific content, especially about the size of an acre and what it can produce, and the importance of conserving environmental resources.

However, two students mentioned learning about how much work farming takes.

Meeting educator goals. Questions were formulated for each group of students designed to address the goals stated by their teacher and farm educator. Student answers were coded based on whether they indicated that the teacher’s and farm educator’s goals had been met. Of the 171 responses received to these questions, 144 indicated that at least one of the teacher’s or farm educator’s goals had been met.

When asked what they remembered about their field trip, the majority of responses referred to animals or to the experience of being at the farm. Fewer responses referred to food and plants. Only a few students mentioned specific content learning or said something positive about the trip. No students said anything negative about the trip in response to this question. Overall, students memories and self-reported learning focused on their experiences with animals on the farm, specific content that the field trip covered, and affective learning, particularly about their own likes and dislikes.

Summary

Important themes that arose in interviews with teachers and farm educators included connections to curriculum, experience, agricultural literacy, interconnectivity, sustainability, and logistical factors. Common goals for farm field trips included the farm experience, “ah-ha” moments, meeting teacher expectations, where food comes from, and supporting classroom learning. Student perceptions of field trips focused on animals, specific content learning, and affective learning.

The findings described above grew out of an attempt to explore and better understand the goals, perceptions, and experiences of educators and students surrounding field trips to educational farms. These findings are discussed further in the following chapter.

Discussion

This study explored the goals of educators and the experiences of students when taking school field trips to educational farms. At each of three educational farms, interviews were conducted with the farm-based educator and with classroom teachers visiting the farms with their classes; students participating in field trips to the farms responded to questions about their experience and learning. Data were coded based on emergent themes, and goals of each educator were identified.

This chapter begins by revisiting the research questions that guided this study. The findings presented in the previous chapter are discussed in greater detail. Implications for field trips, educational farms, and future research are considered.

Revisiting the Research Questions

This study was guided by several research questions.

1. What are the benefits of field trips to educational farms?

a. As perceived by classroom teachers? Teachers viewed the benefits of a field trip to an educational farm as including providing a hands-on experience of something *real*, solidification of classroom learning, and an opportunity to learn about local food and the agricultural economy.

Teachers valued the opportunity to take their students to a real working farm. In comparing Gorman with other operations in the area that offered pumpkin field trips, one teacher said: “Gorman, however, is a working farm, and it really gives the children more of a farm experience than a carnival experience with pumpkin fields.” Teachers felt that it was particularly meaningful for their students to experience an operational farm rather than an idealized version of farming.

Curricular connections are central to most field trips (Anderson, et al., 2006; Anderson & Zhang, 2003; Kisiel, 2005). Most teachers who participated in this study needed to justify the field trip to parents and school administrators in terms of the curriculum, and all teachers justified the field trip to themselves in these terms. As in prior studies (Anderson, et al., 2006; Anderson & Zhang, 2003; Kisiel, 2005), several teachers mentioned that a connection to the curriculum was essential in taking a field trip, or mentioned curricular connections as a central factor in selecting the farm as a field trip site. Farm educators understood the importance of curricular connections, and all the farms aligned their field trips to state (or provincial) standards, and were willing to work with teachers to improve curricular fit. Although all teachers saw curricular connections as a benefit of the farm field trip, the ways that teachers connected the field trip to the classroom varied widely, consistent with Kisiel's (2005) finding that teachers connected field trips to the classroom in ways that ranged from full integration of the field trip with a curricular unit to implicit or opportunistic connections.

The development of agricultural literacy by students, including understanding where food comes from and understanding the importance of farms, was another important benefit teachers saw in a field trip to a farm. A visit to a farm was seen as an effective way to help students develop an understanding of agriculture. Teaching students where their food comes from was the purpose of the trip for some teachers. In addition, teachers felt that it was important for their students to learn that farms were important, and to develop agricultural literacy in general.

b. As perceived by farm-based educators? Farm educators saw the benefits of field trips to the farm as being a positive and valuable experience for youth and providing an introduction to the farm and to farms in general. For youth who may never have been to a farm before, or “who had no idea their food came from a garden,” a visit to a farm was seen to be a

valuable experience, and farm educators sought to make it memorable. Similar to classroom teachers, farm educators thought a field trip to a farm was an effective way to prompt students to think about agriculture and to develop agricultural literacy. In addition, farm educators hoped that the field trip would be only one of many visits to the farm, expecting that youth might come back for summer camp or with their families. This is in keeping with the view expressed by other museum educators that a school field trip is part of a continuum of visits to the museum venue (Tran, 2006). Farm educators felt that the field trip offered an opportunity to introduce students to the farm and to thinking about the role of agriculture in their lives.

c. As perceived by students? Students viewed the benefits of the farm field trip as being mostly affective, mentioning factors such as having fun, interactions with animals, and the overall experience. They also stated that they learned on the field trips, and noted both cognitive and affective learning. Students' self-reported learning reflects prior assertions that affective and factual learning both occur in museums and on field trips. Although cognitive learning is the component assessed by school testing, the value of affective learning should not be dismissed. A teacher can capitalize on the excitement developed on a field trip to increase student engagement and learning back in the classroom. Igniting student interest may improve attitudes toward a subject or toward learning in general, ultimately impacting cognitive development as well. In addition, affective learning is an important aspect of youth development; a field trip thus benefits students from a holistic development perspective.

2. How do the goals of classroom-based teachers and farm-based educators align with one another?

a. What are the goals of farm-based educators in hosting field trips? Farm educator goals focused on providing a good and valuable experience for the students, magical

“ah-ha” moments, and the needs of the visiting teachers. They wanted students to have an experience that was positive and memorable when they visited the farm with their class. They wanted students to have moments of revelation, which they called magical or “ah-ha” moments, in which students discovered something new. In addition, they wanted the teachers to have a positive experience – to feel that their needs were met and that the field trip was a simple process. Reports from classroom teachers and from students indicated that these goals had been fulfilled.

b. *What are the goals of classroom teachers in taking classes on field trips to educational farms?* In keeping with the benefits they saw from farm-based field trips, teacher goals focused on where food comes from, a unique experience, and reinforcing classroom learning. It was important to teachers that their students begin to develop agricultural literacy and understand where and how their food was produced. Teachers also wanted to provide students with a unique experience that they would not otherwise get. They further hoped that this experience would help to reinforce concepts that they had taught or would teach in class.

c. *How do these goals align with one another?* The clearest point on which farm educators and classroom teachers agreed had to do with providing students with the experience of being on the farm. This was expressed in various ways, but revolved around providing a positive, valuable experience for youth that they were unlikely to get otherwise. The farm experience was also mentioned as a benefit of the trip by all three groups of stakeholders.

Another point of intersection was agricultural literacy, which included where food comes from and the importance of farms. Both classroom teachers and farm educators felt that it was important to teach students where and how food is produced and how essential farms are to our society. Although only one farm educator mentioned, “where food comes from” as an explicit

goal, this may be because it forms an underlying assumption, rather than a specific field trip aim. All interviewed farm educators talked about the importance of connecting people with the source of their food and with challenging students to think about where their food came from. That it was mentioned less frequently as a goal by farm educators may reflect the *centrality* of this concept, rather than suggesting its unimportance.

In addition, farm educators created another area of alignment by considering the teachers' needs to be one of their goals. A teacher's goals thereby became the farm educator's goals as well.

The main point of divergence had to do with the magical or "ah-ha" moment that the farm educators desired. Two of the three farm-based educators mentioned these moments of revelation among their goals. Classroom teachers spoke of wanting a positive overall experience, but did not speak of specific moments. It might be argued that an "ah-ha" moment could be part of providing a unique and good experience on the farm, but it was not something any teacher mentioned explicitly.

3. What do youth learn or take away from field trips to educational farms? In accordance with a primary goal of the educators in this study, the students surveyed often mentioned the excitement of the experience as a main takeaway of the farm field trip. They reported enjoying their time on the farm and having fun. One element that students particularly remembered about the trip was their ability to connect with the animals on the farm. Animals in zoos have been found to elicit strong emotional reactions from visitors (Myers, Saunders, & Birjulin, 2004); animals at a farm may have a similar impact. It is possible that the impact of farm animals may be even greater, as an educational farm may allow youth a more intimate experience of interacting with the animals, rather than simply viewing them.

A number of students noted that they had discovered new foods (such as kale) or something new about foods (for example, “spinach is not gross”). These sorts of discoveries about vegetables parallel findings of enhanced preferences for vegetables by students following garden-based education programs (Koch, Waliczek, & Zajicek, 2006; Libman, 2007; McAleese & Ranklin, 2007; Morris & Zidenberg-Cherr, 2002; Ratcliffe, Merrigan, Rogers, & Goldberg, 2011). Other elements reported by students included seeing the farm as a real place, learning that things in their lives come from farms, and discoveries about themselves, such as things they like and dislike – foods, animals, and farming came up. In addition, many students reported learning specific facts on the farm field trip, such as the shapes and patterns of animal tracks or the volume of food consumed by cows or produced by an acre of land.

Interpretation of Findings

Field trips to farms were perceived as valuable by all three sets of stakeholders that this study considered: farm-based educators, classroom teachers, and students. The *experience* of visiting a working farm was a primary factor that was valued by all participants. Other important factors were connections between the trip and the classroom, affective learning, agricultural literacy, and sustainability. Given their wide-ranging potential, farm field trips should be considered a valuable school-related activity and should be utilized more frequently.

A number of the important themes identified by this study reflect prior findings about museum field trips and agricultural experiences. However, some elements that arose, such as local food, sustainability, and agricultural literacy, have not been addressed in the literature on museum field trips. These factors seem to be a reflection of the unique nature of the farm venue when compared with other museum venues. Engaged in the food and fiber production system, farms are particularly appropriate venues for learning about these factors.

Both classroom teachers and farm educators believed agricultural literacy to be an important component of the field trip. That agricultural literacy does not arise in the museum or field trip literatures is perhaps because this is one way in which farms are distinct from other museum sites such as science museums and zoos. Teachers may choose to visit a farm rather than a science center if their purpose is to help their students develop agricultural literacy.

Closely related to the theme of agricultural literacy was the theme of local food. The concept of local food is becoming more and more visible in our society, and a local farm provides natural connections to thinking about local foods. Supporting local food systems comprises part of the definition of farm-based education (Farm-Based Education Association, 2011). So it is perhaps not surprising that both classroom teachers and farm educators mentioned this concept. Even classroom teachers, who might be less immersed in thinking about local food systems than farm educators, stressed the importance of supporting local farmers and eating locally produced foods.

Classroom teachers and farm educators were both interested in sustainability. Farm educator interest in sustainability was often connected with the farm's mission to promote sustainable agriculture or conservation. Sustainability is woven into the fabric of farm-based education. By definition, farm-based education promotes land stewardship (Farm-Based Education Association, 2011), and a 2008 survey by the Farm-Based Education Association found that the vast majority of educational farms are organic or use some organic practices; only 8% of the respondents to the survey reported running a conventional farm (Farm-Based Education Association, 2008). Teachers' connections to sustainability often related to curriculum requirements or their school's mission. However, two teachers also mentioned sustainability in the context of their personal missions in life or for teaching.

Farm educators and classroom teachers interviewed here often collaborated in planning curriculum and field trips, and in most cases at least communicated about the goals and logistics of the trip beforehand. The collaboration expressed by the participants in this study is in accordance with Tran's (2006) recommendation of collaborative planning to help merge the school and non-school contexts. However, it is in marked contrast to the finding by Tal and Steiner (2006) of little communication between classroom teacher and museum educator prior to field trips to science centers. It is possible that this was an instance in which participant responses were affected by social pressure to say the right thing. However, as the interviewer did not indicate to participants what the "correct" answer might be, it is believed that social acceptability did not influence participant responses. Is this difference because of the type of venue, the individuals involved, or something else? Tal and Steiner's study was conducted in Israel; is there a cultural difference? One farm educator in this study noted the effort required to communicate with teachers:

Teachers are hard to get a hold of. I'm hard to get a hold of. It's just the nature of the beast. It's difficult...but...we've always tried really hard. I'll call teachers up at home or I'll [do] whatever [I have to do] to see if we can connect. (E)

Did these educators simply try harder? What can other field trip venues learn from the communication found here?

It was not surprising that the experience was an important element of a visit to a farm; in fact for many teachers, having students experience being on a farm was the primary purpose of the trip. A field trip provides numerous opportunities for new experiences and for interaction between students and their environment. Interestingly, only one of the eleven educators interviewed voiced an explicit awareness that more than just an experience may be important to

ensure learning. Although the experiential learning model of experience and reflection might enhance student learning from the farm experience, this finding suggests that most of the educators interviewed did not explicitly consider this model when taking or hosting the field trip. However, several classroom teachers indicated that the trip was designed to reinforce classroom learning, or that post-visit activities would involve discussing or writing about the experience. As such a discussion or writing assignment would entail reflection on the experience at the farm, these post-visit activity plans may indicate an implicit understanding by classroom teachers of the importance of reflection on the experience in order for students to obtain the greatest educational benefit.

Several classroom teachers indicated that their goals included having students experience something real. These goals parallel the assertion of informal learning theory that learning should be situated in real life. Attempts by all the participating educators to connect the field trip with the classroom correspond to informal learning theory's recommendation of connecting school and out-of-school learning.

A visit to a farm may also be a component of a place-based education strategy, particularly if the farm is in close proximity to the school. As with experiential learning, only two educators specifically mentioned place-based education. However, a number of classroom teachers mentioned that they felt that the hands-on, real-world elements of the field trip were important, in accordance with the central features of place-based education.

Interconnectivity was another theme that emerged from these interviews. Farm educators' interest in interconnectivity may be explained by their understanding of the connectedness of everything on a farm, the importance of the land to the farm, and the connection between the farm and its community. In addition, connecting people to their

community forms part of the definition of farm-based education. Classroom teachers were also concerned with interconnectivity. “Interconnectedness” is a learning standard in New York State (New York State Education Department, 2011); the existence of such learning standards may be related to teachers’ interest in the concept. The finding that interconnectivity was important to these educators suggests that interconnectivity, and community in particular, deserves to be explored in more depth and perhaps become more of a focus for field trips. Trips into the community are likely to be particularly effective ways to teach youth about community.

This study raised a few ideas regarding field trip logistics that have not received much attention in the prior literature. The logistical barriers mentioned by teachers of money, transportation, administrative procedures, and school scheduling reflect those previously reported in the literature. As recommended by Bartosh, et al. (2006), both classroom teachers and farm educators readily acknowledged these constraints and did their best to overcome them. Although the constraints mentioned by teachers were expected, some of the approaches teachers took to overcoming these barriers were unusual.

One tactic that teachers used to overcome barriers was to take field trips to venues within walking distance. Several teachers stated that they selected field trips within walking distance in order to avoid the effort and money involved with buses. One teacher lamented her location in the suburbs, where there were few field trip opportunities that her class could walk to. When a class walks to a field trip destination there is not the difficulty of arranging a bus and there is no cost for transportation. In addition, this approach may allow for a field trip that is not a full day in length, thus interfering less with other school activities. Also, as they may be easier for teachers to arrange, walking field trips may allow for more frequent trips into the community, even to the same location, helping students to connect with their community and to connect their

school learning with the real world. Not previously addressed in the literature, walking field trips deserve further study. Are walking field trips widely utilized? Should teachers be encouraged to consider more nearby field trip options? Although few classes may be able to walk to a nearby farm, venues within walking distance might permit more field trips for classes with time and financial limitations. More local field trips might encourage students to see their communities as places of learning, fostering ongoing learning both within and outside of the classroom. Such trips might also serve to help students build stronger connections between their school learning and real life, reinforcing school learning and enabling students to apply their learning more widely and effectively.

Parental support helped in overcoming the barriers to field trips. Many of the teachers received financial assistance for field trips from the school's parents' association. In other cases, students' parents directly covered the cost of the field trip. This finding suggests that parents should be considered as another stakeholder when thinking about school field trips. Although they have been considered in museum research on family visits to museums, parents' views have not typically been addressed in field trip research. Parental support of field trips, mentioned by a number of the teachers in this study, has received little attention in other literature. One exception was a study by Anderson and Zhang (2003), who found that Vancouver area field trips were supported by the availability of parent drivers; this was also the case for one of the teachers in this study. Other mention of parents in the context of field trips is typically limited to justifying field trip time or expense to parents. However, parental support was crucial for several teachers in this study. Parents should be considered as an additional stakeholder group when discussing field trips.

Teachers preferred field trips that were well-organized by the venue, reflecting prior assertions (Anderson & Zhang, 2003; DeWitt & Osborne, 2007; DeWitt & Storksdieck, 2008) that informal education venues must work to understand teacher needs and create programming that is easy for teachers to use. In this study, goals mentioned by informal educators for field trips included teachers who were happy, had their needs met, and found the field trip easy. All the farm-based educators indicated that they were willing to be flexible and adapt field trips to meet teacher needs and make them easier for teachers.

That teachers seek to, and even are required to, connect the field trip to their classroom curriculum is hardly surprising, and reflects prior findings (Anderson, et al., 2006; Anderson & Zhang, 2003; Kisiel, 2005). The farms' alignment of field trip programming with learning standards reflects an understanding of the necessity of connecting a field trip experience to the classroom. The variety of ways that teachers connect the field trip to their classroom, from a brief class discussion to a month-long unit on pumpkins or a yearlong focus on sustainability, echoes the findings by Kisiel (2005) of a wide variety of approaches to integrating field trips with the classroom.

The main farm educator goal of positive student experience echoes museum educator goals previously reported in the literature (Tran, 2006). However, the emphasis that farm educators place on understanding and meeting teacher expectations seems unusual in the realm of museum field trips. A number of previous studies have reported museum educators being *unaware* of teacher expectations (Preusch, 2010; Tal & Steiner, 2006; Anderson & Zhang, 2003). In contrast, farm educators and classroom teachers in this study seem to be quite in tune with one another's needs and expectations. How did they do this? The farm-based educators who participated in this study all indicated a concern for teachers' needs, even going as far as to

list “what teachers want” as one of their field trip goals. One farm even sought advice from a teacher advisory board to help ensure programmatic “fit” with school needs.

Why might this be? Perhaps farms are less “standard” field trip venues than science centers or art museums, and so teachers and/or farm educators have thought more about how to work together to create an effective field trip. Perhaps the teachers who volunteered for this study were particularly interested and engaged, and so made sure to communicate their needs to the farm educators. Many authors in the past have recommended that informal educators seek to better understand teacher goals and to take the initiative in bridging the gap between formal and informal goals. Have the farm educators in this study heeded this advice? “What teachers want” has not been a goal explicitly mentioned by other informal educators in the literature. Did other museum educators consider this so obvious that they did not mention it? Or did they not consider it important at all? Why did these educators consider what classroom teachers wanted, while others may not have?

Using Falk and Dierking’s (2000) definition of museum, this study was informed by the literature on museums and museum field trips. This study addresses a type of museum field trip that has not formerly been looked at: trips to educational farms. As might be expected, farm-based field trips seem to involve a number of issues common to all field trip settings. Although it fits within the definition of museum used by this study, farm-based education should perhaps be seen in a slightly different light from other types of museums in that it combines production and education. Visitors to an educational farm are not viewing exhibits in a context separate from real life; they are experiencing a working, productive farm *in* real life. In this sense, the educational farm may fall somewhere between museum and the existing environment utilized by place-based education. As an informal educational institution, an educational farm is a museum.

But as a business engaged in meaningful work (the production of food and fiber), an educational farm is a component of the community and the environment, whose use is advocated by place-based education. Perhaps it does not matter whether we view farm-based education through the lens of museum education or place-based education. A more appropriate approach may be for farm-based education to be informed by the elements of each type of education that are applicable to educational farms.

Implications

The findings of this study may inform farm field trips, both from the perspective of the farm educator and of the classroom teacher. The prevalence and visibility of educational farms is increasing, and an understanding of the benefits seen by the various stakeholders is essential to expanding the field of farm-based education. In addition, this study's findings may inform field trips to other museum sites.

In particular, the level of interaction between the informal educators and classroom teachers in this study may provide a useful model for improving field trip communication in all types of museum venues. This study's finding of the positive communication and collaboration between farm educators and classroom teachers supports the expectation by prior researchers that such communication may help to create effective field trips. Other museum venues could try to replicate this level of communication.

This study suggests that teachers prefer, and that informal venues can create, well-organized programs that make field trips easy for teachers. Several teachers indicated that an easy, well-organized program was something they looked for in selecting field trip venues. Several farm educators considered ease and fit for teachers to be among their goals for a field

trip. This finding indicates that informal venues should seek to simplify the field trip process for teachers and provide programs consider teachers' needs.

Teachers with financial and busing barriers to field trips should consider a wider variety of field trips, including ones within walking distance of the school. Teachers in this study found that by taking walking field trips they were able to have more field trips than they might otherwise be able to afford. In keeping with the recommendations of place-based education, teachers should consider the complete range of venues in the community as possible field trip venues. While a trip to the zoo or the science center might be valuable, a visit to the firehouse, senior center, or local family who keeps chickens might also be useful, while at the same time being more feasible.

Many teachers need to justify field trips to their school administration and to parents. The benefits expressed by stakeholders in this study could be used by other classroom teachers and by farm educators to justify field trips to farms.

Comments by students about discovering new vegetables or learning that they like a new vegetable suggest that a farm field trip may influence vegetable knowledge and preferences. Fruit and vegetable consumption is associated with reduced risk of many chronic diseases (United States Department of Agriculture & United States Department of Health and Human Services, 2010), yet most children and adolescents consume fewer servings of fruits and vegetables than is recommended (Krebs-Smith, Cook, Subar, Cleveland, Friday, & Kahle, 1996; Department of Agriculture & United States Department of Health and Human Services, 2010). As has been found with hands-on garden education (Koch, Waliczek, & Zajicek, 2006; Libman, 2007; McAleese & Ranklin, 2007; Morris & Zidenberg-Cherr, 2002; Ratcliffe, Merrigan,

Rogers, & Goldberg, 2011), farm field trips may contribute to young people eating more and greater varieties of fruits and vegetables.

Recommendations for Future Research

As is often the case with research, particularly of the exploratory sort, this study raises at least as many questions as it answers. Future research directions suggested by this study include:

1. This study focused on three educational farms and eight teachers and their students. Do these findings generalize to other educational farms and teachers?
2. Do these findings generalize to other museum venues, as broadly defined by Falk and Dierking (2000)?
3. Do these finding generalize to place-based education more broadly?
4. This study sought student perspectives one week after the field trip, yet field trips have been found to produce lasting memories; what are the longer-term impacts of such field trips on youth?
5. What is the potential of walking field trips? How often are they taken? How can they be encouraged? Are they as valuable as field trips to more distant locations?
6. Awareness of teachers' needs and of field trip barriers seemed stronger from this group of farm educators than from other museum educators, and the communication between classroom teachers and farm educators seemed greater than has previously been reported. Why? How can museum venues replicate this level of awareness and communication?
7. What is the role of parent support in facilitating field trips? What are parents' views and perceptions of field trips?

8. Should other groups, such as parents, school administrators, or the wider community, be considered stakeholders in farm-based field trips? If so, how can their views be considered? How can they best be included in the planning and execution of field trips?
9. Interconnectivity and community emerged as factors of importance; what role do these concepts play in field trips?
10. How can the constraints on field trips be reduced?
11. This study focused on participants' perceptions of benefits; what is the measurable impact of farm-based field trips on students?

Conclusion

Both types of educators, as well as students, who participated in this study valued a farm field trip. Farms were seen as valuable places for learning, especially about concepts such as food, connections, and agriculture. Farm field trips were exciting and fun for students and were also perceived to be beneficial learning activities by farm-based educators, classroom teachers, and students.

This study explored the goals and perceptions of classroom teachers and farm educators with regard to farm field trips and the perceptions of students visiting farms on field trips. Field trips to farms were perceived as valuable by all three sets of stakeholders that this study considered: farm-based educators, classroom teachers, and students. The experience of visiting a working farm was a primary factor appreciated by all groups. Other essential benefits were supporting classroom curriculum, affective learning, developing agricultural literacy, and understanding sustainability. Educators' goals focused on providing a farm experience, developing agricultural literacy, and specific goals the classroom teacher had for the trip. Youth focused on the experience of the farm, interactions with animals, and discoveries about

themselves and about food. Farm field trips offer a broad range of educational opportunities and should be considered a valuable school-related activity with potential for providing a unique experience and developing agricultural literacy.

Appendix A: Farm Site Information

Everdale Organic Farm and Environmental Learning Center

www.everdale.org

Mission Statement:

We have come together at Everdale Learning Centre to create an exemplary, not-for-profit facility for co-operative education. We strive to demonstrate, in practical ways, the enormous promise of sustainable agriculture, renewable energy, and alternative building methods. We shall provide a variety of hands-on educational experiences (such as intensive apprenticeships, short courses, workshops, and school field trips) for people of all ages, cultures and socioeconomic backgrounds. We are committed to forging partnerships with other educators and working together democratically, in an open, questing spirit.

Statement of Goals and Objectives:

We have come together to revive Everdale Place (Canada's first free school) by establishing an exemplary project of co-operation in sustainable living. Over the course of several years, we intend to:

- Fulfill Everdale's educational mandate by offering a variety of hands-on educational experiences (such as workshops, seminars and apprenticeships) to teach best practices in sustainable agriculture, renewable energy, and alternative building methods; and by creating working demonstration models on site to showcase environmentally sound technologies.*
- Return the fields to cultivation, replenish the soil and grow fruits, vegetables and herbs on a working certified organic farm; promote the health of the land by planting indigenous trees and shrubs, providing a diverse habitat for insects, birds and animals;*
- Repair the buildings and retrofit them so that they are more energy-efficient;*
- Forge partnerships with progressive food organizations to grow crops for urban food programs and open market sale;*
- Form co-operative relations with local citizens, both farmers and food-consumers, contributing to our community; and,*
- Work together in an egalitarian, questing spirit in the best traditions of Everdale School.*

Gorman Heritage Farm

www.gormanfarm.org

Mission Statement:

The mission of Gorman Heritage Farm is to provide people the opportunity to explore and learn the history, methods and values of a working family farm in a natural setting.

Gorman Heritage Farm promotes:

- Hands-on education for people of all ages, particularly local students, about agriculture, local habitats and the value of manual labor (through volunteering, internships and community service) as an essential pillar of American culture*

- *The preservation of a distinct regional identity and local traditions, specifically the history of Gorman Farm and the values of the Gorman family that helped it flourish*
- *An understanding of modern food systems and how sustainable agriculture, the consumption of locally grown food and responsible land use can support a healthy society*
- *The entrepreneurial spirit that seeks new avenues for self-sustaining business opportunities*
- *Community building that highlights the essential connections between people, land and meaningful labor.*

Shelburne Farms

www.shelburnefarms.org

Shelburne Farms is a membership-supported, nonprofit environmental education center, 1,400-acre working farm, and National Historic Landmark on the shores of Lake Champlain in Shelburne, Vermont. Our mission is to cultivate a conservation ethic for a sustainable future. Casual visitors may enjoy the walking trails, children's farmyard, inn, restaurant, property tours and special events. To pursue our mission, we practice rural land uses that are environmentally, economically and culturally sustainable.

Shelburne Farms was created as a model agricultural estate in 1886 by William Seward and Lila Vanderbilt Webb. In 1972, it became an educational nonprofit. Our nearly 400 acres of woodlands are Green Certified from the American Tree Farm System. Our grass-based dairy has 125 purebred, registered Brown Swiss cows. Their milk is transformed into our award-winning farmhouse cheddar cheese here on the property.

Appendix B: Interview Scripts

Interview Script: Farm Educators

As we've discussed, I am exploring the benefits of farm-based education field trips. I am interested in finding out about your goals in hosting field trips and what you think students gain from their trips to [name of location].

First, I'd like to know a bit of background about you and your organization.

What is the mission of [name of location]?

How do field trips fit in to that mission?

How many field trips do you host each year? How long has [name of location] been hosting school field trips?

What other educational programming do you do here at [name of location]?

How long have you been a farm educator?

Tell me a bit about your background prior to working with [name of location].

Now I have a few questions that are more specific to school field trips.

What are your objectives or goals for school field trips?
[If more than one] Which is most important?

Do you usually talk to the teachers before they arrive?

- About goals, objectives?
- About logistics?
- About something else?

What do you expect students to get out of their visit to [name of location]?

What do you think students learn on their visits to the farm?

Do you expect field trips to be one-time experiences, or do you expect students to return to the farm?

Do you expect field trips to impact agricultural literacy? If so, in what ways?

Interview Script: Teachers

As we've discussed, I am exploring the benefits of farm-based education field trips. I understand that you will be taking your class on a field trip to [name of location] this fall. I am interested in finding out about your goals in taking field trips and what you think your students will gain from their trips to the farm.

First, I'd like to know about you as a teacher.

Tell me a bit about your background as a teacher. What is your philosophy of teaching/learning? How do field trips fit into your philosophy?

Tell me about the field trips you took your students on last year. [locations, goals, successes, challenges]

Are you planning any other field trips for this year? If so, where do you plan to go?

Do you have any constraints on field trips in your school? [money, buses, time, etc]

What are your memorable field trips, whether as a student or as a teacher?

Now I have a few questions that are more specific your upcoming trip to [name of location].

Why are you taking your students on a field trip to this farm?

What do you expect students to get out of their visit?
[If more than one goal] Which is most important?

Have you talked to the farm educator about your goals for the trip?

How is this trip related to the rest of your curriculum? Do you plan to integrate this trip into the rest of your curriculum? If so, how?

Are you planning to do any related activities before and/or after the trip?

What are your perceptions of agriculture? Agriculture literacy?

Appendix C: Student Questionnaire

Last week you visited [name of location] with your class. Please answer a few questions to tell us about your trip. We are asking you to do this because only you can tell us what you actually think and know. There are no right or wrong answers. Please do not put your name on this paper.

What do you remember most about your visit to [name of location]?

What is a farm?

What did you learn on your trip to the farm?

[Content: The content questions in the post-visit questionnaire will be the same as those in the pre-visit questionnaire. The aim of the content questions at this stage will be to assess whether the educators' and teachers' objectives have been met.]

Appendix D: Coding Protocol

Code as:	If:
Experiential	Experiential learning, experience, experiencing, hands-on, exposure
Interconnectivity	Helping students make connections
Community	Community, importance of community, dependence within community, connection of farm to community
Connection to land	Connect to land, tie to land, connect to agriculture
Life cycle	Life cycle, circle of life
Connections among people/animals/plants	Connections and interdependence among people, animals, and plants
Logistical factors	
Constraints	Factors that make field trips more difficult
Facilitators	Factors that make field trips easier
Overcoming constraints	Ways teachers get around constraints and take field trips anyway
Sustainability	Environmental sustainability, continuation of farm program
Local food	Purchasing food from local sources, supporting local farmers, eating local food
Agricultural literacy	Helping students understand agriculture, how farms work, what a farm is
Importance of farms	Important to have farms, importance of farmers, why we need farms
Where food comes from	Where food comes from
Curriculum connections	Ways farmers and teachers work to connect field trips to curriculum, whether independently or in communication with one another
Pre-post activities	Specific activities teachers do before or after trip, activities farms give teachers to use in conjunction with trip
Goals	What teachers or farm educators hope/expect students to get out of the trip

Field trip goals of farm educators and classroom teachers

Educator	Everdale	Gorman	Shelburne
Farm Educator	<p>Best of the farm</p> <p>Magical moment, something new</p> <p>What the teacher wants</p> <p>Visit to the big field and the livestock</p> <p>Importance of farms</p> <p>Organic farming</p> <p>Farm as an ecosystem</p> <p>Investigation, stimulate curiosity</p>	<p>Connect people to the land, participate in the food system</p> <p>Introduction to the farm</p> <p>Exposure to growing things</p> <p>Living things</p> <p>Respect</p> <p>Experience</p> <p>Life needs, life cycle</p> <p>Exposure to farm animals</p>	<p>Make connections</p> <p>Where food comes from</p> <p>Ah-ha moments</p> <p>Understand place</p> <p>History of Vermont, landscape change over time</p> <p>Best experience, equal experience</p> <p>Great day</p> <p>Teachers happy, goals met, easy field trip</p> <p>Lasting memory</p> <p>New experience, new thought</p>
Teacher (1)	<p>Importance of farming</p> <p>Where food comes from</p> <p>Urban/rural dependence</p> <p>Humans, plants, animals connected</p>	<p>Solidify thought that living things have basic needs</p> <p>We're all connected</p> <p>Experience</p> <p>Economic issues of goods and services</p> <p><i>How community works together</i></p>	<p>Have an experience they don't otherwise get</p> <p>Connection to unit of study or sustainability theme</p> <p>Exposure</p> <p>Exploration</p>
Teacher (2)	<p>Relate what they learn on field trip to what they do in class</p> <p>→ Connections between in class and outside</p> <p>Hands-on, not just reading/seeing/hearing</p>	<p>Really good experience they won't get anywhere else</p> <p>Jumping off point for other activities</p> <p>Where food comes from</p> <p>Great time</p> <p>Interact with animals</p>	<p>Experience she can't duplicate in the classroom</p> <p>Experience of being on the property of Shelburne</p> <p>Working dairy, functional business</p> <p>Appreciation of food production</p> <p>Importance of dairy industry</p>
Teacher (3)	<p>Reinforce concepts taught in class</p> <p>Lifestyle impact</p>	<p>Deeper understanding of animals</p> <p>Category of farm animals</p> <p>Depends on specific child and group</p>	

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